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XVI.

THE COLUMNAR ARCHITECTURE OF THE EGYPTIANS.

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I. The Derivation of the Doric Order from Egyptian Prototypes.

§ 1. *Introductory.*

In the following essay I have attempted a slight examination of the well-known archæological question, Was the Doric Order imported into Greece from Egypt? in so far as that question is illumined by an investigation into the theoretic origin and development of the column and the pier as architectural members. The chronological, geographical, and politico-historical elements of the problem are for the time forgotten, and the attention fixed on the comparative artistic value and significance of the so-called "proto-Doric" pillars in Egypt and the columns of the Doric style in Greece, as capable of bearing important testimony to the actual connection between the two. In the present state of our knowledge this method of attacking the question seems to me to be the only one that leads to even measurably certain conclusions.

My plan is first to state the outlines of the theory of the column and the pier, and then to attempt to apply that theory to the elucidation of the forms in question.

§ 2. *Theoretical Origin of the Column and Pier as Architectural Members.*

A COLUMN, as I shall use the term, is a free, vertical architectural support or prop, whose transverse section is either a circle, a modified circle, or several circles grouped together. It is *free* in that it is unconnected with the building to which it belongs, except by its mechanical bearings, namely, its two ends. This separates it from the pilaster and the vertical moulding. Its *verticality* distinguishes it from the flying buttress and rafter. As a *support* for the entablature and roof, it is distinct from all tower, obelisk, and mast forms, the column being always more or less subservient in the conformation of its summit, and of the lines and decorations of its parts, to the superposed structure, while the spire or obelisk is entirely self-determined. The section of a column is a simple, modified, or compound *circle;* as, for example, simple in Tuscan, modified — by flutes — in Doric and Corinthian, compound in some Gothic columns. This characteristic keeps it apart from the pier.

A PIER is a support, free and vertical like a column, but one whose transverse section is a simple, modified, or compound *rectangle.* A square pier, so long as it has neither base nor cap-stone, is simply a wall whose length equals its thickness. Regarded in this light, therefore, in addition to its supporting intent, it has an object entirely foreign to a column, namely, the limitation of a space. The rectangular form, however, may be reached from a slightly different starting-point. In rocky excavations it is necessary to leave pillars at intervals to prevent the collapse of the roof. These pillars are ordinarily quite carelessly shaped, but the first step toward an architectural form is the reduction of their rough masses to plane-bounded piers.

At all events, the pier and the column are of widely different origin. While the former is to be regarded as the descendant either of a wall or of an underground pillar, the latter must in the last analysis be traced to the wooden prop of a primitive hut. The pier, in short, is of mineral, the column of vegetable origin.

The pier, it is true, may receive a cap-stone and base, its angles may be replaced by planes, — making it polygonal; yet, though it may thus acquire features like those of a column, its essential character remains entirely different. Even if, by continuing the process of replacement, a pier were produced with an infinite number of sides, and with a transverse section sensibly coinciding with a circle, and so, to mere scientific scrutiny, it were transformed into a cylindrical column, it would fail of being a column in any true, philosophical sense. Conversely, a column may lose its distinguishing characteristic, may be planed down to prismatic angularity, and yet continue to demand of the critic the same treatment as before. In short, the lines of development which start from the primitive pier and the primitive column may approach indefinitely, but, strictly speaking, can never meet.

§ 3. *First Steps in the Development of the Column and Pier.*

The only indispensable member of either column or pier, as well as the one that especially proclaims the type of each, is the shaft, — an upright beam or pillar to convey the roof-weight to the floor. Since, however, in simple huts, a wooden prop resting on a damp floor is likely to decay, or, if small, to be crowded into the ground, a very natural and early improvement is the insertion of a flat stone beneath it, to prevent one or the other, or both, of these mishaps. This flat stone is the primitive plinth. Again, in order that the roof-beams may rest more firmly on the head of the prop, a flat, plinth-like slab is perhaps placed on its top. In case the potential column be composed of bamboos or reeds tied together in a bundle, — as often in alluvial countries, — such a cap is almost necessary. This tile or block, for whatever purpose designed, is the primitive abacus. Now, when the growing desire for neat and tasteful construction demands the exchange of the scraggy prop for a straight, carefully chosen log, and when this log is trimmed and smoothed, these supplementary members are squared to correspond with the increased elegance of the shaft. Furthermore, when in process of time the wooden support is copied in more or less durable materials, as sandstone or marble, the plinth and abacus, though no longer of such obvious necessity, are often retained for reasons of taste. The plinth is kept not so much because the architect fancies that the marble shaft is in any sense subject to decay, or even because a suitable platform is lacking to sustain it, as because, when lifted and planted on a sort of pedestal, it *looks* more stable, *seems* to spring more satisfactorily from the undefined level of the floor. Similarly, the abacus is kept not only because the architrave is really better provided for with it, and the shaft itself better defended against the hostility of the elements, but also because with it the support *seems* more ample, the protection more complete, and because by it the beauty, individuality, and dignity of the shaft are decidedly enhanced. The mechanical reason for the expansion of the upper part of the shaft into an echinus or capital is not so easy to discover. It seems necessary to consider the motive almost entirely æsthetic. To be sure, the strength of the abacus is greater if its projection beyond the limits of the top of the shaft be slight, and, where convenience requires a slender column, this strength is most easily obtained by widening the upper end of the shaft until it approaches the dimensions of the abacus. But just what natural form is employed for this purpose is very doubtful. On the other hand, this addition is entirely explicable from the side of æsthetics. The increased beauty of the shaft, the extended facilities for varied decoration, and the closer union of shaft and abacus, are obvious. Finally, a simple expedient to prevent the chance splitting or separation of the primitive prop or reed-bundle is, of course, a thong, cord, or ring bound around its top. Hence arises the astragal.*

It is an important fact, worthy of mention at this point, that in Egyptian architecture the abacus is properly not a part of the column, but a projection from the architrave. In this particular the architecture of Egypt is contrasted with that of Greece.† In the former the column is terminated by its capital, in the latter by its abacus. The Egyptians, therefore, seem to have regarded the column as a more independent member than the Greeks, and so to have crowned it with its most prominent and beautiful part. Hence, an Egyptian column might be tolerated without any incumbent weight, while its Greek homologue without an entablature would be as meaningless as an unresolved chord of the seventh.‡

As the difference between column and pier is perhaps not generally admitted or understood,§ and as the modified forms of the two approach each other so closely that serious confusion has arisen about them in architectural criticism, it seems necessary to attempt to give an outline of the theoretical development of the latter type with much the same fulness as of the former. A few examples, taken, for various reasons, almost exclusively from Egypt, will also be adduced by way of illustration.

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* For a trace of the primitive form of the astragal in Greek architecture, see Paus. v. 20; and also, upon the same, Wilkins, Athens, p. 18, note.

† Schnaase, Gesch. d. bildenden Künste, i. 336.

‡ Another indication that the Egyptians had no such delicate sense of the supporting function of the column as the Greeks is to be found in the frequency with which they nullified the idea of verticality by the use of *horizontal* zones of color on the shaft and capital. See Schnaase, *op. cit.*, i. 330.

§ For instances of the same use of terms as that found in this essay, however, see Gwilt, Dict. of Architecture, p. 735, and Müller, Anc. Art and its Remains, tr. by Leitch, pp. 308, 309.

The primitive pier, occurring, as has been said, in caves, is of necessity so shapeless, so entirely the product of utilitarian selection, that except by a stretch of language it cannot be brought within the jurisdiction of art history. The first excavations in rock follow the veins or strata that can be cut into with the least labor. They are irregular and rambling, — now constricted into galleries, now expanded into chambers. Hard spots are avoided, cut around, and left. Wherever large rooms are desired, some kind of pillar is allowed to remain to keep the roof from tumbling in. Any large coal-mine will furnish abundant instances of this primitive use of the pier.

When now the artistic instinct begins to assert its authority, and demand that these excavations, whether or not used for habitation, be made more neat and attractive, the walls, roof, and pillars are smoothed, and made to conform to some definite lines. A rectangular shape is chosen for the cave, which is as large as the consistency of the rock will warrant. If more space be called for, a second chamber is added to the first, separated from it by a partition, but communicating with it by a door. Presently it is observed that this partition-wall can be safely perforated by more than one door, and the conveniences of space almost doubled. The wall becomes a line of pillars of uniform depth or thickness, but very possibly of varying width. This stage of development is admirably exemplified by the ancient Tourah quarries,* whence the stone for the Great Pyramid was taken, and by many of the tombs on the plateau of Gizeh. Among the latter are rectangular rooms of all sizes and shapes, with partitions entire, half broken up, or completely transformed into a row of piers.† Of later date, but nearly similar construction, are the Tombs of the Kings at Thebes.‡

Whether the next step be the decoration of the simple square pillar, or the addition of an abacus-like projection above it, is indifferent.

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* Vyse, Pyramids of Gizeh, iii. 90–94.

† *E.g.*, Lepsius, Denkmäler aus Egypten, i. 26, 28, 29, Tombs 71, 88, 92, *et passim.*

‡ Ibid., i. 96, 97.

The abacus probably first occurs in such half-excavated, half-erected structures as some of the tombs at Gizeh, which are cellars covered with a roof of dressed stone.* The abacus in such cases is only a contrivance for collecting the roof-weight. In fact, in Egypt it frequently appears in such hybrid buildings, but not in genuine excavations like those at Tourah, Bab-el-Molûk, or Benihassan,† except with piers of a highly complex character. The decorations applied are determined by the intent of the excavation, and by the national genius for decorative art. A plain surface and a rectangular shape are among the earliest refinements of the jagged pillar. Inscriptions, rude outlines of pictures follow, and by gradual approaches such bas-reliefs are reached as those found in Tomb 90 at Gizeh,‡ or in Tombs 1 and 2 at Zauiet-el-Meitîn,§ where in the one case figures of men are inserted in the face of the pier, and in the other a beautiful little knot of lotus-flowers, with a papyrus-bell or two, is shown tied up by a cord, seemingly bearing on its apex the load of the ornamented architrave. The plinth, although an important member of columns, is not required by stone piers, especially when floor and pier are continuous. Hence, in the earliest Egyptian examples, it is not to be found.‖ At Benihassan, however, plinths are invariably present in the more elegant of the tombs, but accompanying highly developed piers. They belong to a time when the beauty and fitness of bases for columns have been acknowledged and conventionally adopted for piers also.¶

The pier idea has as yet progressed but a few steps. A new one is now very readily taken. The rigid angles of the square pier are broken by bevels beginning just below the upper, and ending just above the lower end of the pier. For an illustration, take Tomb 31 at Sakkarah, where four piers, notably *without abacus or plinth*, are adorned in this simple way.** Now, continue these bevels upward and downward, and increase their surface until it equals that which remains of the four original sides, and an octagonal pier results. By repeating the process of replacement, sixteen-sided and thirty-two-sided piers will be produced. Examples of the octagonal variety are found in the portico of Tomb 1 at Benihassan,[*] and of the sixteen-sided in the interior of the same tomb, or in the portico of Tomb 2.[†]

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* Lepsius, i. 21, Tombs 15, 16, and 17.

† Ibid., i. 59, 60.

‡ Ibid., i. 27.

§ Ibid., i. 57; Schnaase, *op. cit.*, i. 334; Reber, Kunstgesch. d. Alterthums, p. 14.

‖ Tomb 24 at Sakkarah, which might at first sight seem to be an exception to this, is really very late, belonging probably to the time of Psammitichus, Dynasty XXVI. See Lepsius, i. 40; Wilkinson, Anc. Egyptians, ii. 262; Kenrick, Anc. Egypt, i. 259; Vyse, Pyr. of Gizeh, i. 218.

¶ Lepsius, i. 58–61; Rosellini, Monumenti dell' Egitto, ii. 1, 2. See also Essay II., § 4.

** Lepsius, i. 42.

The pier has now reached a stage of evolution at which its faces may be beautified by flutes. The flute may be applied either to columns or to piers. It is a very incomplex but effective device to diminish the cumbrousness of a shaft without diminishing its apparent strength, to adorn a surface otherwise plain or simply rounded by the changing grace of light and shade, and, by directing the eye irresistibly to the vertical lines, to render the supporting office of the shaft more obvious. Its origin is much disputed, and it may be more satisfactory to regard it as a merely fanciful decoration employed for the purposes just enumerated. However that may be, it is of cardinal importance for us to observe the forms that result from its use on columns and piers. Take, for example, a round wooden column, and at regular intervals introduce sixteen narrow vertical grooves into its sides; take also a sixteen-sided stone pier, and make a similar groove in each of its sides, — and compare the results. In the first case a smooth convexity remains between the flutes; in the second, two narrow planes meeting in a sharp edge. But if the width of the flutes be sufficiently increased to make the edges of adjacent ones coincident, the whole surface of the shaft in both cases will be occupied by vertical concavities meeting in sharp edges, and it will be almost impossible to tell which of the modified forms originated in the cylinder and which in the prism; for their sections, if their diameters be the same, will be precisely alike. Now, if the modified column be copied into stone and set beside the modified pier, no difference in their shafts will be discernible; yet there *is* a difference, an

Fig. 1.

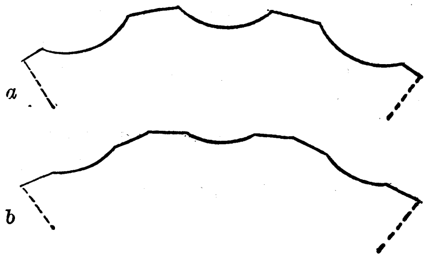

Fig. 1. *a.* Partial horizontal section of column with 16 flutes separated from each other by listels. *b.* Do. of pier with 16 fluted faces which meet in sharp edges between the flutes.

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[*] Lepsius, i. 60.

[†] Ibid., i. 59, 60; Rosellini, ii. 1, 2.

essential difference, a difference that criticism is bound to observe. Hence, in the discussion of the identity or non-identity of two such forms, the argument, if following this general direction, must turn upon the answer to the question respecting each, "Did the artist, consciously or unconsciously, work with the column or the pier type in mind?"

§ 4. *Application of the Theory to the "Proto-Doric" Question.*

Should we continue the study of the logical evolution of the column and pier, we should find the subject steadily becoming more clear, and the conclusions in regard to it more abundantly substantiated by familiar examples. But we have gone far enough for our purpose: let us now turn to the application of the theory to the actual forms before us. I have approached the criticism of the forms themselves by a circuitous route, because I am convinced that only thus can we see them aright. The famous question of the existence of Doric types in Egypt must be regarded from the side of theoretic development rather than from that of natural history; we must seek to determine the artistic motives, whether consciously operative or not, which directed architects in Egypt, and afterwards in Greece, in the choice and elaboration of the forms in question, rather than merely to compare their shapes and proportions as so many similar or dissimilar phenomena. Not that this scientific comparison is valueless, but that its conclusions are not so decisive as those which result from a thoughtful consideration of the early development of architectural ideas. Hence, though I shall refer to the external differences between the Egyptian and the Greek forms, I shall do so principally because they add something to the probability of the internal ones.

My purpose, briefly stated, is to show how I conceive that the true Doric and the so-called "proto-Doric" forms stand at the ends of two long lines of development that set out from totally diverse sources. No one, I think, will venture to argue that the forms under consideration are primitive or simple; they are rather elevated points in the course of artistic progress, which were reached, not by a sudden leap, but by gradual approach. If, then, though the points themselves seem to lie never so near together, the lines of development in which they lie can be traced backward towards their starting-points, and can be shown to be so strongly divergent when thus pursued that their origins cannot be identical, the irreconcilable theoretic separation of the points is established and their historic connection rendered improbable.

§ 5. "*Proto-Doric*" *Forms in Egypt.*

One of the *prima facie* objections to the "proto-Doric" theory is the extreme rarity of "proto-Doric" forms in Egypt. Were there

Fig. 2.

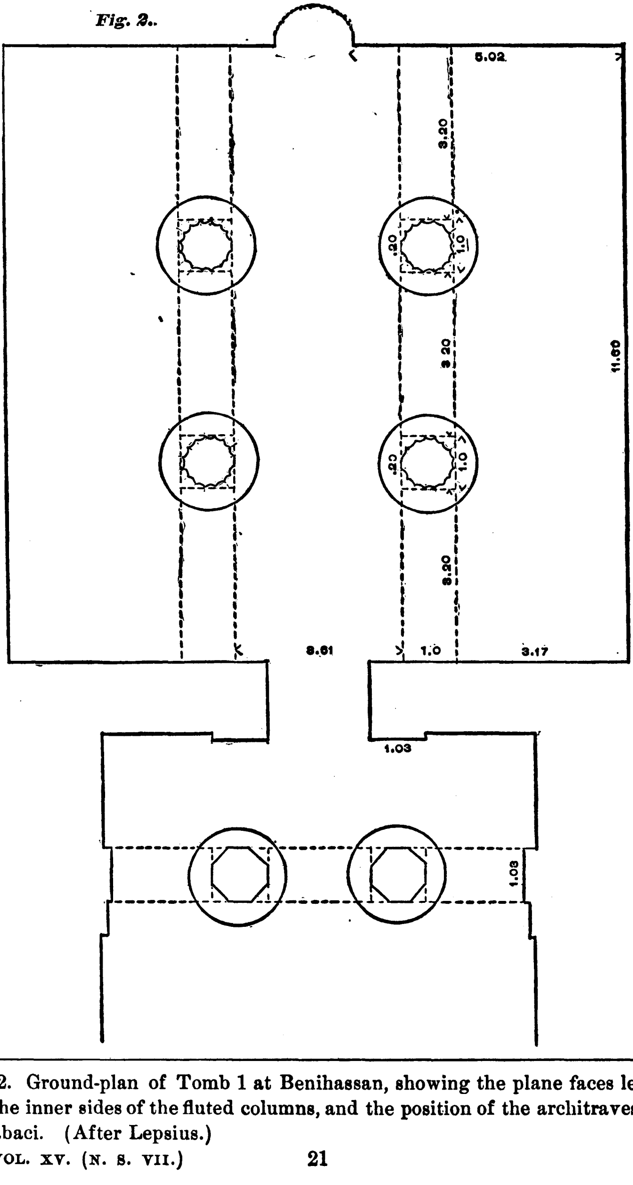

FIG. 2. Ground-plan of Tomb 1 at Benihassan, showing the plane faces left on the inner sides of the fluted columns, and the position of the architraves and abaci. (After Lepsius.)

any national order that the Greeks were supposed to have stolen, the case would be entirely different. But, so far from this, the "proto-Doricists" have had great difficulty in finding even a few good examples for their argument. Indeed, Mr. Falkener, who seems to have pursued the subject most enthusiastically in his "Museum of Classical Antiquities," (London, 1861,) was able to scrape together but a pitiful *twenty-seven.** I have been unable to gain access to Mr. Falkener's treatise directly, but my argument respects what the unanimous testimony of quotations and references in other books shows to be his strongest examples, namely, the Northern Tombs or "Grottos" at Benihassan.

As the curious traveller descries those rock-cut porticos on the eastern bluffs of the Nile valley, and notes the chaste and un-Egyptian simplicity of their graceful shafts, he may be reminded quite excusably of some Greek distyle cella *in antis*, and may infer, though not very logically, that therefore the world-renowned Greeks in their columnar architecture were only plagiarists from the Egyptians. In the path of this inference, as already repeatedly implied, stand several insurmountable obstacles; for the two species of proof referred to — external and internal — indicate that in respect of both outward appearance and inward motive the "proto-Doric" and the true Doric must be thrown into different categories. These two classes of proof I shall now proceed to state.

§ 6. *External Differences.*

The differences that may be distinctively called *external* lie either in the dimensions of the forms, or in the number and character of the constituent members. Under the head of mensurable differences may be classed the differences (1.) in the rate of diminution of the shaft, i. e. the ratio of the difference between the upper and lower diameters to the distance between the points at which those diameters are taken, or the height of the shaft; (2.) in the slenderness of the shaft, i. e. the ratio between its lower diameter and its height; and to these may be conveniently added, (3.) in the number of flutes or faces susceptible of fluting. Under the morphological differences, if we may call them so, are to be grouped (1.) the various members which the Greek order possesses, but the Egyptian lacks; and (2.) the one member which the Egyptian order has, but the Greek lacks.

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* Fergusson, Hist. of Architecture, i. 220; Wathen, Arts, Antiquities, and Chronology of Anc. Egypt, (London, 1843,) p. 180.

The diminution of the Greek shafts is much more rapid than that of the Egyptian; and, furthermore, is generally more rapid in the older Greek temples than in the later. For example, I take a few specimens from the long list given by Dr. P. F. Krell, in his "History of the Doric Style" (Stuttgart, 1870): —

Temple at Assos	1 in 11.62
Temple of Poseidon at Pæstum	" 13.34
Temple of Heracles at Agrigentum . . .	" 15.04
Temple "D" on the Acropolis of Selinus .	" 17.00
Temple of Athene at Ægina	" 21.18
Temple of Artemis at Ortygia	" 23.83
Temple of Theseus at Athens	" 25.17
The Parthenon at Athens	" 26.43
Temple of Nemesis at Rhamnus	" 29.44

The average of twenty-one examples is 1 in 20.45.

The rates of diminution at Benihassan are plainly unconnected with this series. They are, approximately: —

Porch of Tomb 2 (16-sided)	1 in 42
" " 1 (8-sided)	" 55
Interior of Tomb 1 (16-sided)	" 100

The ratio between the lower diameters of the shafts at Benihassan and their heights corresponds with that exhibited, not by the older Greek columns, but by those of the culminating epoch of Hellenic architecture. Mr. Fergusson seems to be at fault on this point. In the positive belief that the Greek but imitates the Egyptian order, he selects three examples to typify what he terms the three stages in the development of the Doric style, — the immature or imitative, the mature or perfected, and the degenerate stages. His first example — from the ancient temple of Corinth — "is one of the most massive specimens of architecture existing, more so than even its rock-cut prototype at Benihassan, from which it is most indubitably copied";[*] the second is from the Parthenon, and represents the same order as it was refined and perfected by the sensitive Greek taste; while the third is "the weak and lean form of the Roman order of the same name."[†] His table of ratios — whence derived, I do not know — is as follows: —

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[*] Hist. of Architecture, i. 220.

[‡] Ibid., i. 227.

Early, from Corinth	1 : 4.47
Perfected, from the Parthenon	1 : 6.025
Degenerate, from the island of Delos	1 : 7.015 *

To bring out the facts in the matter, I select from Dr. Krell's list a few instances, as follows: —

Temple of Athene at Ortygia	1 : 4.27
Temple of Poseidon at Pæstum	1 : 4.29
Temple of Artemis at Ortygia	1 : 4.29
Temple at Corinth	1 : 4.32
Temple at Assos	1 : 4.47
Temple "D" on the Acropolis of Selinus	1 : 4.50
Temple of Zeus at Selinus	1 : 4.60
Temple of Concordia at Agrigentum	1 : 4.67
Temple at Segesta	1 : 4.82
Temple of Juno Lacinia at Agrigentum	1 : 4.97
Temple "S" on eastern plateau at Selinus	1 : 5.01
Temple of Apollo Epicurus at Bassæ	1 : 5.13
Temple of Athene at Ægina	1 : 5.30
The Parthenon at Athens	1 : 5.47
Temple of Theseus at Athens	1 : 5.62
The Fountain-chapel at Cadacchio	1 : 5.63

The average ratio of twenty-five examples is 1 : 4.85.

The ratios of the Egyptian forms are, according to Lepsius: —

16-sided shafts, interior of Tomb 1	1 : 5.15
" " porch of Tomb 2	1 : 5.34
8-sided shafts, porch of Tomb 1	1 : 5.41

Mr. Fergusson, however, holds that "the Doric order, when first introduced from Egypt, partook of even more than Egyptian solidity"; † which, if not verbally meaningless, is at least, in the face of these lists, misleading. For it appears that the columns at Corinth and most of those extant in Magna Græcia are so much stouter than the piers at Benihassan that they are quite incomparable with the latter, while it remains for the thoroughly Hellenic temples of Ægina and Bassæ and for the perfect Parthenon to furnish proportions like those of their supposably more clumsy prototypes.

Though not of prime importance, it may be interesting to mention

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* Hist. of Architecture, i. 228.

† Ibid., i. 227.

the difference in respect of number of flutes. At Benihassan this number is either eight or sixteen; in the Doric order, regularly, twenty.* The notable point here is, of course, that shafts with eight or sixteen sides suitable for flutes are naturally evolved from square pillars by replacement of angles, while twenty-sided shafts are not easily reached by that process.

Turning now to divergences in the number of members, we notice at once that the Greek order invariably has several members which the Egyptian has not. All these peculiar characteristics in the former order bear testimony to the presence of the true column idea in the Greek mind, and recall the thoughts of the beholder from the distracting hollows and edges of the flutes to the primal notion of a simple round support. These members are the cuts or grooves, usually one or three in number, near the top of the shaft; the swelling echinus that indissolubly unites shaft and abacus; and the annulets that encircle the lower part of the echinus. No trace of groove, echinus, or annulet occurs at Benihassan. The unbroken prism of the shaft meets the simple abacus-like projection of the architrave without the intervention of even a rudimentary intermediate member.†

On the other hand, the Egyptian order has one accompaniment, plainly borrowed from true columnar construction, which at the same time is entirely un-Greek. This member is the broad, circular plinth, taken from the Bundle Order of columns.‡ Joined to these simple pillars, it is obviously conventional and artistically incongruous. In the rare instances where plinths appear with the Doric order, they undoubtedly exhibit a totally different type from this. Ordinarily, however, the shaft rests immediately upon the stylobate, which is evidently considered competent to perform the function of plinth to the entire colonnade.

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* Krell, *op. cit.*, Table of Dimensions, &c.

† It has been supposed by some that Doric echini have been discovered at Karnak (Fergusson, Hist. of Arch., i. 220; Falkener, Mus. Class. Antiqs., i. 87; Reber, Gesch. d. Baukunst im Alterthum, Leipzig, 1869, p. 153); but Schnaase remarks (Gesch. d. bild. Künste, i. 336), "Es ist kürzlich mehr als wahrscheinlich gemacht worden dass diese vermeintlichen *Kapitäle* von Karnak in Wirklichkeit nichts Anderes als *Basen* sind"; and Krell says (Gesch. d. dor. Styls, p. 26), "Ein gewöhnlich in den Handbüchern abgezeichnetes, angeblich protodorisches Capitäl von Karnak, an dem eine Art von Echinus erschiene, ist eine willkürliche Composition Falkeners aus Basen- und Capitäl-Fragmenten, wie Bergau und Erbkam (Arch. Anzeiger, 1863, p. 115) nachgewiesen." See figures in Fergusson and Reber as above, and Lepsius, i. 83. It may be added, that Sir J. G. Wilkinson makes a suggestion which may be properly called absurd about the derivation of the Doric echinus from the lower part of what he terms the "bud" capital. See his "Egypt in the Time of the Pharaohs," p. 156, and "Anc. Egyptians," ii. 293.

‡ See Essay II., § 4.

§ 7. *Internal Differences.*

But those differences between the true and "proto-Doric" which I have called *internal*, justify us in making still more radical distinctions. If we bear in mind the principles of criticism laid down in the opening pages of this essay, if we admit the total theoretical dissimilarity between columns and piers there insisted upon, and if we compare the forms before us with reference to this point with the scores of previous and contemporary architectural remnants that time has spared us in both countries, I think no one, after fairly canvassing the evidence, can doubt that different architectural ideas find embodiment in the two orders, in respect both of the fundamental character of the shaft itself, and of its relations to the adjacent members of the building. The inference is then easy, that the comparatively mature forms before us have descended from utterly diverse progenitors, and — unless we imagine a direct and avowed copying of these particular tombs at Benihassan by the architect of every early Greek temple, which is absurd — that the derivation of the Greek order from the Egyptian at any previous moment of their development is in the highest degree improbable, and becomes more and more inconceivable the further back we proceed.

The column, based on the tree type, rarely occurs (if at all) in Egyptian buildings of an earlier time than the XXXIIId Dynasty (305–30 B. C.) ; and when it does come in, it brings with it proofs of its derivation from the palm-tree in the proportions of its shaft and the decoration of its capital. Before this time, and particularly during the period when the Benihassan tombs were cut (XIIth Dynasty, 2380–2167 B. C., according to Lepsius), the only supports of vegetable origin that we know anything about are plainly fashioned after water-plants, but never after cylindrical, log-like props.* But the variety of primitive stone forms in actual existence to-day, and dating from the earliest known periods of Egyptian history (at least from Dynasty

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* Almost the oldest Egyptian columns known are the few found at the *southern* tombs at Benihassan. They are beautiful reproductions in stone of a knot of four lotus-buds tied up with a string. See Lepsius, i. 60, and Essay II., § 4.

III., 3338–3124 B. C., according to Lepsius), is enormous. A graded list of known pier forms can be made out without difficulty, that shall include nearly every important theoretical variety of this quarry-derived member. The outlines of such a list have been incidentally given in the first part of this essay.

At the same time, it must be freely admitted that these primitive buildings, especially in the first great period of the Egyptian empire, that of the Pyramid-builders, while offering many beautiful instances of the growth of the pier idea, usually bear curious marks of predilections on the part of their architects for the methods and materials of the carpenter.* In panel-work,† and in projecting eaves and rafters,‡ though not in upright supports, we are confronted by an unconscious reversion of forms to a different architectural type from that suggested by the material actually employed. The only adequate explanation of this fact seems to be that the Egyptian race migrated into Egypt from a much better timbered region, bringing with them the traditions of wooden construction; that after their arrival in the Nile valley they found stone so much more convenient, magnificent and durable that they adopted it for their public edifices; that the pier was first developed after the migration; that the earlier construction remained only in the impress it put upon the later; and hence that at Benihassan we have a marvellous, and, at first, perplexing conjunction of the two.

The Greeks, on the other hand, very rarely used the pier in the works of their best periods. Penetrate as far as we may into the history of Greek architecture, the column still appears as a frequent member.§ Both history and its own characteristics declare its derivation from wood. The historical references are well known and need not be rehearsed here,‖ but the traces of wooden construction in the column itself are perhaps worthy of mention now. Besides the echinus, the astragal, — whether groove or moulding, — the plinth, and the projecting abacus, which are so difficult of explanation on any other supposition, the following characteristics add something to the

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* Fergusson, i. 91, 99.

† Lepsius, i. 23, 24, 25, &c.

‡ Particularly at Benihassan. Mr. Fergusson allows that the panels in the tombs at Gizeh and elsewhere indicate a previous use of wood, but thinks that the construction of the Benihassan tombs points to the use of brick! (i. 99.)

§ Müller, Anc. Art, trans., p. 25. The word *κίων*, though not found in the Iliad, occurs twelve times in the Odyssey.

‖ Ibid., p. 25; Wilkins, Athens, p. 18.

plausibility of the wood-derivation theory. In the Ionic and Corinthian orders the flutes are parted by narrow, convex listels, the remnants of the rounded surface in which the flutes are imagined to be cut. In most of the examples of the older Doric style, the flutes meet in sharp edges, so that it seems hopeless to discover the basal form that the architect had in mind. In this discouraging situation, however, there is usually found a little three-cornered convexity between the tops of the flutes.* If this three-cornered piece consisted of two planes meeting in a ridge which was continuous with the edge between the flutes below, the prism would be suggested as the original or fundamental form; but it is not so composed; it is a smooth convexity, a segment of the surface of a cylinder, so that, if a tranverse section of the column were made a centimeter below the echinus, it would be a circle, either unbroken or but slightly indented. Further, one of the temples at Pæstum shows columns whose flutes terminate a considerable distance below the echinus, leaving a wide zone at the top of the shaft to testify to the artist's idea.† Finally, a Doric column was found at Priene with regular listels such as the Ionic and Corinthian columns have.‡ The "proto-Doric" forms are without any such marks. No convexities anywhere intervene between the flutes; the angularity of the prism obtains from top to bottom. The flutes are sometimes omitted, leaving the prism unmodified,§ or, if they are present, at least one side is left unfluted for the reception of hieroglyphics.||

Again, the column and the pier bear different relations to the adjacent members, particularly the architrave and abacus. The pier recollects that in theory both it and the architrave belong to the same wall. Of this theoretical wall three reminiscences may remain: first, two short sections, attached to the side-walls, called pilasters; second, one or more central remnants, — perhaps somewhat modified, — whose length approximates to their thickness, which are the piers themselves; and, third, a strip from the top of the wall engaged with the roof, which may be called by analogy the architrave. The feature which betrays the affinity of these is the identical thickness of the architrave and of the bases, if not of the whole bodies of the pilasters and piers.

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* See, for example, the Dilettanti Society's "Ionian Antiquities," ii. 6, 13, &c.

† See Thomas Major, "Pæstum," plates 21 and 22.

‡ Ionian Antiquities, i. 18. Compare iii. 27 and 32.

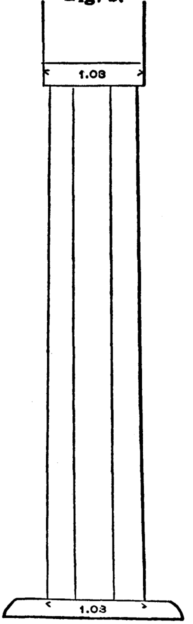
§ No unquestioned example at Benihassan; but a good one from Karnak is photographed by Rougé, "Mission," plate 61.

|| Lepsius, i. 59; and Fig. 2.

The column, on the contrary, has no blood-relationship with the architrave. The two are brought together mechanically from different sources, and exercise only such influence over each other's dimensions as the most ordinary necessities of stability and congruity demand. The abacus, as already remarked, does not properly belong to the pier, although sometimes used with it. When so used, it is not as a development of the pier itself, but as the mere servitor of the architrave or an actual projection from it. When used with columns it ordinarily binds itself more closely to the capital than to the architrave.

This theorizing is justified by the differences between the true and false Doric orders. The former has a peculiar entablature (including the architrave) which always accompanies it; the latter has no such invariable accompaniment. And, even were the entablature equally invariable in the two styles, it is yet employed in different ways, the Doric being quite independent of the column and resting on but a portion of its top; the Egyptian imposing its thickness upon the shaft-base and resting on the entire shaft-top equally. Further, the abaci are quite dissimilar; the Greek projecting far beyond the lines of the shaft, and being united to it by a swelling echinus; the Egyptian being merely an outgrowth of the architrave. (Fig. 3.)

Fig. 3.



I may note, in closing, that all the differences and resemblances between the two orders are well exhibited in a comparison of the "Grottos" at Benihassan with the cave, to the eastward of Jerusalem, ordinarily known as the Tomb of St. James.*

§ 8. *General Conclusion.*

This brings me to the end of my subject. If I have succeeded in showing by this rather extended piece of argumentation how the

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* Wilson, Jerusalem, photograph 39 *b*; Pierotti, Jerusalem Explored, plate 60.

Fig. 3. Side elevation of one of the octagonal piers in the portico of Tomb 1 at Benihassan. (From the measurements of Lepsius.)

Greek and Egyptian forms in question may have arrived at the similarity that they exhibit from entirely different starting-points; how it is probable, both from the general tendencies of architecture in the two countries and from the divergences of the forms themselves, that this difference of origin is real; and how this conclusion renders it altogether probable that the Greek order is *not* an imitation or derivative of the Egyptian, — I have attained my object.

II. A CLASSIFICATION OF EGYPTIAN COLUMNS.

§ 1. *Introductory.*

IN the following essay I propose to present as complete a classification and description of Egyptian columns as the materials within my reach will permit. I was led to this line of investigation, and then to this formulation of results, by the difficulty I experienced in finding reliable digests of the phenomena of Egyptian architecture. Originally, then, I undertook this study simply to define and systemize my own knowledge. But subsequently I became convinced that several interesting conclusions about the early workings of the artistic instinct might be extracted from the accumulating treasuries of information which Lepsius, Champollion, and others have so carefully begun; and since such conclusions are necessarily conditioned upon a precise acquaintance with the actual forms, an additional motive was presented to continue the work already begun.

For a research of this nature two classes of material are at hand: first, hundreds of drawings and photographs collected by various royal and private expeditions into Egypt since the beginning of the present century; and, second, descriptions of the monuments in histories and books of travel. The assertions made in the sequel are almost entirely based upon the authority of plates and photographs. Of plates, the gigantic publications of the French and Prussian governments are much superior to all others. Of photographs, those taken by Rougé and by Dümichen are the best I have seen. To these is to be added a long list of books of variable merit and trustworthiness, each of which, however, more or less illumines some branch of the subject.* On the other hand, I have not dared to put much confidence in any statement unsupported by the testimony of the plates. So many flaws can be found in the accounts given by the various manuals of Egyptian history, antiquities, and art which I could consult, that I have become entirely distrustful of them all.

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* The following list contains the most important: —

C. R. Lepsius: Denkmäler aus Aegypten und Aethiopien. 900 plates in 6 Abth. (12 vols.). Berlin, 1849 - 1873.

M. Jomard, edit.: Déscription de l'Égypte. 26 vols. of text; 925 plates in 12 vols. Paris, 1820 - 1830.

Yet there is nothing so recondite or difficult about the subject as to prevent its perfectly plain presentation. The statements of the following pages will all be of the most patent phenomena, so obvious that it seems truly marvellous that no succinct account of them is readily obtainable. It has been thought, indeed, that no clear separation of Egyptian columns into generic groups is possible, but this notion, as the sequel will show, is not wholly true, for in most cases the generic forms and the artistic conceptions on which they are based are quite evident.

I have ventured to add to the descriptions of the various columnar members a few notes on their mathematical proportions. These remarks take the position of notes because the generalizations of which they are the substance are drawn from too few examples to be in any sense final. They are trustworthy as far as they go, and are of some interest.

While I have considerable faith in the engravings from which the following descriptions are drawn, yet it is to be said that there is abundant opportunity for correction and emendation in them and in conclusions drawn from them. I only offer this study in the hope that it may serve as a convenient summary of the data at hand until something better appears.

Johannes Dümichen: Archäologische Expedition nach Aegypten. Photographische Resultate. Berlin, 1871.

Le Vte. E. de Rougé: Album Photographique de la Mission Remplie en Égypte. Paris, 1864.

Champollion-le-Jeune: Monuments de l'Égypte et de la Nubie. 400 plates in 4 vols., with 2 vols. of descriptive text. Paris, 1835-1840.

Jules Gailhabaud: Monuments Anciens et Modernes. 4 vols. Paris, 1865.

Charles Lenormant: Musée des Antiquités Égyptiennes. Paris, 1835-1842.

Ippolito Rosellini: I Monumenti dell' Egitto e della Nubia. 9 vols. of text; 800 plates in 3 vols. Pisa, 1832-1844.

Vivant Denon: Voyage dans la Basse et la Haute Égypte. 1 vol. of plates, 1 of text. Paris, 1832.

To this list ought also to be appended, for greater completeness, the title of a new book which I have had no opportunity to see, — P. M. de la Faye: Histoire de l'Art Égyptienne. Paris, 1879. — For further titles, see Catalogue of Books on Egypt and Egyptology, and on Assyria and Assyriology, issued by Trübner & Co., London, 1880.

§ 2. *Sir Gardiner Wilkinson's Classification.*

The only formal classification of Egyptian columns that I have seen is that given by Sir Gardiner Wilkinson, the author of "The Manners and Customs of the Ancient Egyptians" (revised edition, London, 1879). This classification first appeared in a small hand-book called "The Egyptians in the Time of the Pharaohs" (London, 1857, p. 153), and was subsequently incorporated in substance into the article on "Architecture" in the Encyclopædia Britannica (9th edition). In outline it is as follows: —

1. Square pillars, "derived from the quarry, ... taken from the mass left to support the roof of rock."

2. Polygonal pillars, formed from the preceding "by cutting off the four angles." Fluted pillars are included under this head; for it is added, "The next step was to hollow out the faces into grooves, and the only trace of the original column was then the central facette, which was left flat in order to receive a line of hieroglyphics."

3. Columns with "bud capitals," divided into three sub-genera according as only four or many plants are represented as tied together, or, all representation of separate stalks being omitted, the general shape only of the cluster is given. This group also, like the second, is regarded as a derivation from the first: "Pillars had always been painted with various devices, among which plants were the most common; these were afterwards sculptured in relief; and at length, when convenience required the angles to be removed, the pillar was cut away into the form of the plants hitherto sculptured upon its four sides; and the four plants alone being left, were represented bound together to account for their position and to complete the illusion."

4. Columns with bell-shaped capitals, "representing the same plant in blossom that the third order represented in bud."

5. Palm-tree columns, which copy from the preceding groups the cord wound about the upper part of the shaft as well as the cutting-in of the base of the same.

6. Columns with Isis-heads for capitals. These, too, result from the decoration of square pillars.

7. Composite columns, originating in the adornment of bell capitals, and the addition of some lotus forms. "In this order," too, "may be classed the volute-headed column, which was of great antiquity, at least as early as the beginning of the XVIIIth Dynasty, and which was derived from the water-plant typical of Upper, as the papyrus was of Lower Egypt."

8. Osiride columns, — square pillars with a figure of Osiris or of Typhon on one face.

This classification, besides being entirely unaccompanied by explanatory references and containing several assertions that are very difficult to verify, seems to betray considerable uncertainty in the author's mind about the primitive types of his several groups. At first he appears to derive Nos. 2, 3, 6, and 8 from 1; 4, in turn, from 3, and 7 from 4; so that all, with the exception of No. 5 (palm-tree columns), are traced back in the ultimate analysis to the quarry-pillar. Yet no sooner has he affirmed that the clay and reed hut borrowed the pillar from the quarry, than he adds, "But here the obligation ceased; and the built temple soon amply repaid the obligation by giving back to excavated monuments the water-plant, palm-tree, and other columns, with the architrave, plinth, abacus, and other members that could only originate in constructed work," — which is quite a different statement of the case. The former of these conflicting opinions seems, on the whole, to be the one to which Sir Gardiner really inclines. It has some features to which I cannot agree, and against which I shall present a few arguments further on. For the present it will suffice to suggest what I conceive to be a preferable scheme.

§ 3. *A New Classification proposed.*

For the sake of convenience and clearness, the form of the capital (see accompanying cut) is made the basis of classification, although other members would in many cases prove equally decisive and serviceable. On that basis I should throw all the genuine columnar forms of Egyptian architecture into five groups, as follows: —

Fig. 4.

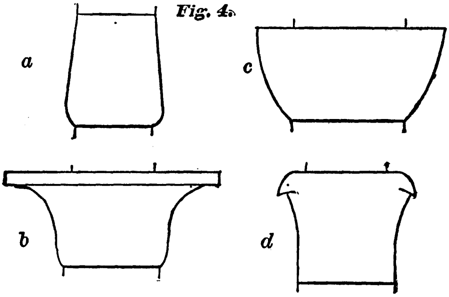

Fig. 4. Characteristic outlines of capitals of the first four Orders, in vertical section: — *a.* Order I. Bundle Columns; *b.* Order II. Papyrus Columns; *c.* Order III. Lotus Columns; *d.* Order IV. Palm Columns. (From various well-authenticated engravings.)

I. Columns with bulging capitals, — capitals which swell suddenly just above their base and then gradually taper upwards to the abacus. These columns invariably represent with greater or less distinctness a fascicle of water-plants. Hence we shall term this the Bundle Order.*

II. Columns with bell-shaped or crater-form capitals, — capitals which rise in a compound curve, first convex, then concave, to a sharp, flaring edge. These columns seem to symbolize single plants. They constitute the Papyrus Order.

III. Columns with hemispherical capitals, — capitals which expand from below in a simple convex curve to an abrupt termination at the top. This we shall call the Lotus Order.

IV. Columns with capitals apparently formed of palm-leaves. This is the Palm Order.

V. Columns with human heads instead of capitals. As these columns usually bear the head of the goddess Hathor or Isis, they may be known as the Isis Order.

In comparing this scheme with Wilkinson's, it will be observed that groups 1, 2, 8, and part of 6 (supposing that it includes square and polygonal shafts decorated with Isis-heads) are not included here. These are laid aside to constitute a separate group, — Piers, simple, modified, or decorated,† — which I shall not attempt to discuss. Groups 3 and 5 are so obviously natural that they are retained as Orders I. and IV. Similarly, 4 and part of 7 are combined into Order II., — Papyrus Columns, capitals simple, modified, or decorated. The remainders of 6 and 7 then become Orders V. and III. respectively.

That the proposed classification is of practical utility I am convinced from a somewhat extended use of it in studying Egyptian architecture. That it is simple and natural is obvious ; the types successively recognized being the stalk-bundle, the papyrus, the lotus, the palm, and the symbolic shaft with the head of a divinity. That it is comprehensive will appear, I hope, from an examination of the extant remains.‡

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* I have ventured to employ the word "Order" in this essay, not in the technical sense given it in Greek and Roman architecture, but in the sense in which it is used in natural history. See definition of the word in Penrose, "Principles of Athenian Architecture," (London, 1851,) p. 96.

† This exclusion is based on the theory advanced in Essay I., that the distinction between columns and piers should be insisted on.

‡ I have noticed but one irreconcilable form. This is described in § 5.

§ 4. *Order I. — Bundle Columns.*

Under this order I have classed all columns in which a bunch of water-plants, *without* open flowers, is directly or indirectly represented. This is probably the oldest,* and on the whole the most characteristic variety of Egyptian columns. So fully does it typify the architectural genius of the nation that Ruskin (and others) may perhaps be pardoned the sweeping reference to Egyptian columns in general as "the gathered strength of river reeds." † The derivation of the order and its significance as an æsthetic product will be reverted to after some description has been given of its members, varieties, and decorations.

Shaft. — We shall begin with the shaft, because the varieties of structure which it exhibits afford the best basis for further classification. Three such varieties appear on the most casual examination, distinguished from each other by the different representation of stalks on the body of the shaft. In some cases only four stalks are delineated, in some, eight; while in others the number of stalks is not distinctly affirmed, but the general outline and many of the characteristics of the eight-stalk variety are so plainly employed that it is impossible not to regard this third variety as a modification or relative of the second. If these differences are made the basis of division, our classification may be thus extended: —

Order I. — Bundle Columns.
- (*a.*) Four stalks in shaft.
- (*b.*) Eight stalks in shaft, stalks defined.
- (*c.*) Eight (?) stalks in shaft, stalks undefined. (See cuts.)

Adopting this scheme provisionally, let us pause a moment to examine the bottom of the shaft.

The lower part of the shaft displays two kinds of formation. Either, as in (*a*), the stems that compose it are cut off abruptly so as to rest squarely on the plinth; or, as in (*b*) and (*c*), the base is much contracted, as if the constituent plants are conceived to be springing from the plinth in a dense cluster. The first form gives the impression of greater stability and of material architecturally well utilized; the second, of greater naturalness and of a more conscious artistic effort. When uncontracted, the base is also undecorated; but when contracted, it is enveloped in leaf-like sheaths which seem to grow out of the plinth with the stalks. These leafy coverings are obviously reproductions of the bracts or sheaths which accompany reedy growths; and so, besides enlivening an otherwise barren surface, they enhance the impression of vitality which the general figure of the column has already produced. This decoration consists either of a single row of eight contiguous leaves (Fig. 7), or of two or three such rows, concentrically disposed, the points of the inner leaves falling in the intervals of the outer.* The figure of the sheath is repeated in diminishing sizes within its outline, as though each sheath were composed of several decreasing layers.

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* This statement rests on internal evidence. See the hypothesis offered at the end of this section to account for the origin of the order.

† Stones of Venice, vol. i. ch. 8.

Fig. 5.

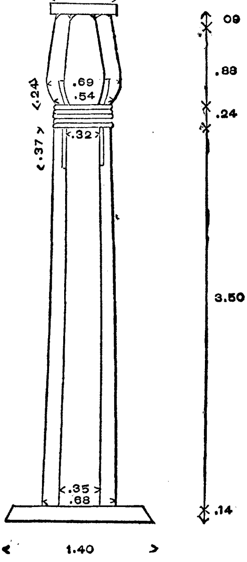
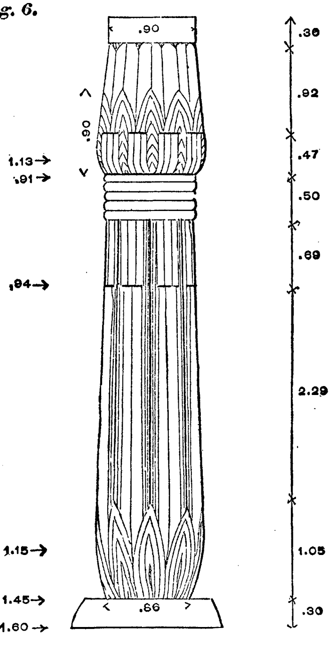


Fig. 6.



The main body of the shaft, as already stated, is either longitudinally incised in imitation of plant-stalks, or made to adopt simply the general shape of a bundle of plants without any distinction of stalks. In (*a*) the stalks are round; but in (*b*) angular (see cuts); and since

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* See Lepsius, i. 107, *c*.

Fig. 5. Bundle Column of the Lotus group, from Tomb 7 at Benihassan. (After Lepsius and Rosellini.)

Fig. 6. Bundle Column of the Papyrus group, first variety, from the Great Temple of Karnak. (After Lepsius.)

(*c*) follows (*b*) rather than (*a*) in most respects, we may conclude that theoretically it copies (*b*) in this particular also.*

The apparent constituents of the shaft may be correctly said to be lilies and reeds. By lilies is meant *Nymphæaceæ*, or "water-lilies" in the broad sense; † and by reeds, *Cyperaceæ*, or sedges.‡ These two families of plants, besides being somewhat widely separated in inter-

Fig. 7.

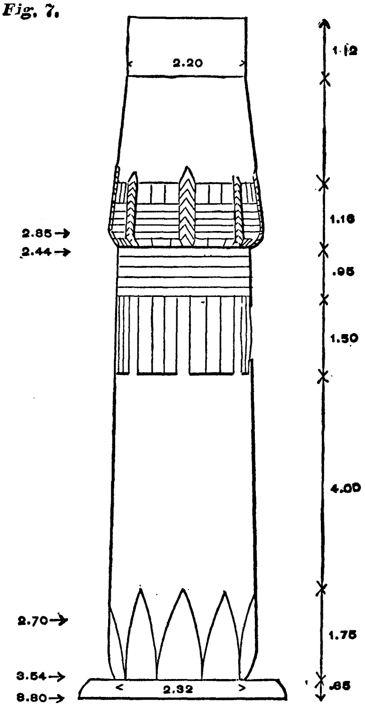
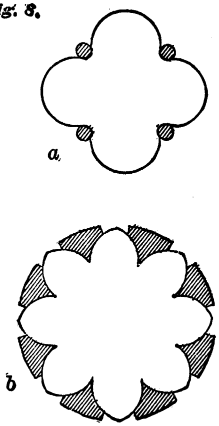


Fig. 8.



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* For a good specimen of sharp edges, see Rougé, plate 62. They have even been considered blemishes to the column: Long, Eg. Antiquities in the Brit. Museum, (London, 1846,) p. 113.

† See Gray, Struct. and System. Botany, (New York, 1873,) p. 385; Manual, (New York, 1858,) p. 22.

‡ Gray, S. and S. Botany, p. 496; Manual, p. 490.

Fig. 7. Bundle Column of the Papyrus group, second variety, from the Hypostyle Hall, Karnak. (After Lepsius.)

Fig. 8. Horizontal sections through capitals of the two sorts of Bundle Columns, showing difference of form both in the large stems constituting the shaft and capital, and in the astragal pieces that are inserted between the stems. (After Lepsius.)

nal structure, are also easily distinguishable in outward appearance. Among other characteristics, it is notable that the "lilies" have round, succulent stems,[*] and the sedges angular, more or less siliceous stalks or culms.[†] Now, to these two families respectively belong the lotus [‡] and the papyrus,[§] the most famous and in ancient times among the most abundant of Egyptian plants.[‖] Various considerations, which will be noted in the proper place, combine to prove that the variety of bundle columns which we have called (*a*) is an imitation of four *lotus* stems, and the variety called (*b*) an imitation of eight *papyrus* stems. Among these considerations is the difference in form and decoration of the shaft-bases just described; for the lotus rises in distinct rope-like stems from a tuber deep under water and hence seldom visible, while the papyrus, like all sedges, springs from the mud in a dense clump of stalks surrounded by numerous sheaths.[¶] Our provisional classification we will now expand into the following: —

Order I. — Bundle Columns.
- A. Shaft composed of four lotus stems.
- B. Shaft composed of papyrus stems.
    1. Stems defined, eight in number.
    2. Stems undefined.

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[*] See Gray, Genera Floræ Americæ Boreali Orientalis Illustrata, (Boston, 1848,) vol. i., plates 42 and 43.

[†] See, for good engravings of the papyrus-plant, John Hayter, Report on the Herculaneum MSS., (London, 1811,) plate at end; and Segato, Atlante Monumentale, etc., ii. 59.

[‡] *Nymphœa Lotus*, or *N. cœrulea*, or even *N. Nelumbo*, the Sacred Bean of India. See Wilkinson, Anc. Egyptians, ii. 407; the same, quoted in Rawlinson's Herodotus, (New York, 1859,) ii. 128; "Archæologia," (Soc. of Antiquaries, London,) xix. 276.

[§] *Cyperus Papyrus*. For common uses, perhaps, *C. dives*, or even other sedges. Wilkinson, Anc. Egyptians, ii. 406; Rawlinson's Herodotus, ii. 129; Hayter, Herculaneum MSS.

[‖] Kenrick (Ancient Egypt, i. 89), says: "The papyrus was found chiefly in the shallow waters of Lower Egypt, and hence became in hieroglyphics the emblem of that district; . . . the lotus, abounding more in Upper Egypt, was employed to denote that kingdom." He adds, that *N. Lotus* and *N. cœrulea* still grow in Egypt; but that *N. Nelumbo* has not been found. Wilkinson, however, affirms that neither the lotus nor the papyrus is properly included in the present flora of Egypt, the former occurring sometimes in the Delta, but not in the Nile itself, and the latter growing only in the Anapus, near Syracuse. Cf. Isaiah, xix. 6, 7.

[¶] There is an exasperating misconception everywhere afloat in hand-books of Egyptian antiquities that the *lotus* has sheaths which are imitated on these columns. See, for example, Long, Eg. Antiqs. in the Brit. Mus., p. 102; T. D. Fosbroke, Encycl. of Antiquities, (London, 1843,) i. 14.

As far as I have observed, the height of the shaft compared with the total height of the column (including plinth and abacus) is greater in A. than in B., — .78 in the former, from .61 to .70 in the latter.

A more decided difference between the two groups — one quite justified by the proportions of the natural types — is found in measuring the height of the shaft by its *greatest* (not lower) diameter. In A., the shaft-height is about 5.50 diameters; in B., never more than 3.95, and seldom more than 3.40.

No general statement can be made about the diminution of the shaft; for, although A. and B. 1 are strongly distinguished, — the one giving the ratio 1 in 27, the other quite invariably 1 in 15, — B. 2 is utterly lawless in this respect, oscillating from 1 in 57 to 1 in 9. This shift from uniformity to the lack of it seems to signify that, although the difference in types between A. and B. was distinctly understood at first, when B. 2 was designed, only the outlines of B. 1 were remembered, while its mathematical properties were usually forgotten.

Plinth. — Before we proceed with the upper parts of the column, the plinth demands a few words. In its simplest, and indeed almost only form, it is a circular elevation of the floor, a frustum of a cone or hemisphere. Sometimes the lower edge is slightly under-cut, but so rarely that the succision may be considered a purely fanciful alteration, a sort of decoration.* Hence it will be enough to suggest the probable significance of the simple form.

If we bear in mind that these columns represent bundles of plants, may we not surmise that this wide basis, so totally unlike the Greek plinth, is a conventional symbol for the artificially modified mass of clay in which the stalks are conceived to be standing? May it not be that the Egyptian artist in imagination — as nurserymen not infrequently do in practice — reduced the earth around the plants to which he wished to call attention to a smooth surface, leaving immediately about the stems, however, a circular platform to serve as a kind of pedestal? The applicability of this hypothesis is greatest in the case of the papyrus columns with their constricted shafts, by which both the difference in nature between shaft and plinth, and the unity between plinth and floor are unmistakably affirmed. The hypothesis, furthermore, seems to be fully confirmed by various bas-reliefs, where the earth in which actual plants are pictured as growing is symbolized by precisely such a rounded platform.† The plants are conventionalized after the genuine Egyptian fashion; why may not the ground be conventional also? At all events, this plinth was evidently felt to be of the nature of a pedestal quite separate from the shaft, and commissioned mainly to raise it into greater prominence and stronger individuality.

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[*] Déscription, ii. 4; Schnaase, Gesch. d. bild. Künste, i. 331.

[†] Lepsius, i. 80, — two square pillars with three plants on each.

With respect to height, as compared with the height of the whole column there appear to be two varieties of plinths, — one about twice the height of the other. The lower variety ranges from .027 to .029 of the column-height; the higher from about .045 to .070, and even more. The plinths of the lotus columns belong to the lower variety.

The greatest diameter of the plinth in terms of the greatest diameter of the shaft in A. is 2.06; in B. 1, 1.21 to 1.39, and upwards; in B. 2, 1.41 to 1.48. In B., however, being contrasted with the small *lowest* diameter of the shaft, the plinth appears broader than it really is.

Astragal. — Returning now to the upper part of the column, we find that always in A. and B. 1, and usually in B. 2, there is wound about the top of the shaft a cord-like astragal. This, when present, is invariably divided into five transverse bands or twists, which are notably horizontal, and not spirally ascending, as they would be if merely imitative of an actual ligature. In the older columns, A. and B. 1, these twists are carefully separated and rounded so as to give a distinct notion of their office and significance; but in B. 2, either they are flush with the surface of the shaft, and are only indicated by lines (Fig. 7), or they are omitted altogether.*

In the sub-group A. the astragal occupies only .06 of the shaft-height; in B., it varies from .09 to .12.

Astragal Pieces. — Under the astragal, and occupying the depressions between the stems of the shaft, pieces of cane or lily-stems are slipped, as if to render the bundle rounder and more solid at the point of cincture, so that the large stems shall not be flattened and distorted by the pressure of the bandage.† In A. these pieces are small and round; in B. 1, large, and trimmed to a triangular shape so as to fit the gaps between the stalks with considerable accuracy (see cuts); and in B. 2, of course, they are only indicated by shallow outlines, or are entirely omitted.‡ The pieces employed in B. are regularly divided by vertical lines into three parallel strips, as if composed of three pieces. These strips are often bound together by bands not unlike the astragal, — horizontal, and usually five in number.§ In these pieces the difference in material between A. and B. is again emphasized, for in each case the same kind of stem is used as in the body of the column. The little scraps of lotus-stem only half fulfil their mission. They seem like experiments out of which the more adequate form developed.

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* Lepsius, i. 101.

§ Ibid., i. 117.

† See Wathen, Arts, Antiqs., and Chron. of the Anc. Egs., p. 98.

‡ Lepsius, i. 101.

It is remarkable that in all cases these pieces are much longer than mere utility requires, and furthermore are decidedly longer below the astragal than above it. Both these facts throw light on the æsthetic operation of the Egyptian mind. The apparent utility of the pieces is pushed somewhat into the background by so modifying them that they shall assume the *rôle* of decorations. A mathematical beauty is at the same time attained by making their length, measured both ways from the joint between shaft and capital, approximately equal below to one fourth of the shaft, and above to one third of the capital.

Capital. — The capital of this order is not so important or complex as in either of the other orders. The crowning member of the column is as yet but slightly "specialized," as biologists would put it. This particular kind of capital has ordinarily been called the "bud capital,"* but this term is appropriate only when applied to the lotus columns, or when loosely descriptive of the *tout ensemble* of the capital. It is always misleading when applied to the papyrus columns, whose capitals are never composed of buds; and, since the latter group is much more numerous than the former, the name must be considered on the whole quite objectionable.

In the lotus group the capital consists of four buds, which terminate the four stems of the shaft. Their swelling bases and tapering points combine to give the capital its peculiar shape. That there may be no ambiguity in the matter, each bud is painted to represent the white of the flower just bursting through the green case of the sepals.† (Fig. 5.)

In the first sub-group of the papyrus columns the capital consists of a simple continuation of the component stalks of the shaft, their triangular shape and sharp edges being as carefully marked as before.‡ The presence of these edges, and the repetition of the exact forms found in the shaft, utterly exclude any *bud* theory here. The principal difficulty with this form is in justifying the swelling which produces the capital. If the stalks of the shaft are conceived to continue above the astragal, their combined diameter should gradually and uninterruptedly diminish. This not being the case, we are driven to an explanation which, though not generally received, seems worthy of acceptance; namely, that the protuberance of the capital is conceived to result from the pressure of the architrave upon the pliant stems.* This explanation would be complete if it also showed why the bulge is at the bottom of the capital rather than at its middle height. The latter form seems to have been seen to be ungraceful, and abandoned for one which should in some measure repeat the figure of the shaft. It is also not impossible that the analogy of the true bud capital may have influenced this form.

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* Wilkinson, Anc. Egs., ii. 293; Kenrick, Anc. Eg., i. 254; Schnaase, Gesch. d. bild. Künste, i. 331; Müller, Anc. Art, p. 219.

† Lepsius, i. 60; Rosellini, ii. 2.

‡ Long, Eg. Antiqs. in the Brit. Mus., p. 118; Rougé, plate 62.

If the second sub-group of papyrus columns be not wrongly interpreted, the preceding theory should apply to it also. This it does, I think, with special success; for although this capital has been understood to represent a single bud, its form is really not at all like a bud, — the expansion is too low and too abrupt. The point of greatest breadth seems to have been determined after the analogy of B. 1.†

The only decorations vouchsafed either of these capitals are sheaths similar to those found at the foot of the shaft. These, of course, are confined to the papyrus columns, where they are almost invariable. They regularly enfold the projecting edges of the stems, and alternate with the astragal pieces, under which they are partially concealed. (See cuts.) Their use can hardly be traced to any natural type. It was probably suggested by the sheaths on the shaft.

The relation between the top of the capital and the abacus is different with the two kinds of columns. The thin plate which surmounts the lotus columns extends considerably beyond the top of the capital; but the heavy block of the papyrus columns, with one exception,‡ conforms exactly to the dimensions of the top of the capital.

The proportions of the capitals I was able to compare are altogether too diverse to admit of any general theory concerning them.

The height of the capital, measured by the shaft-height, is about .22 in A., and from .28 to .38 in B. The same, measured by the column-height, is .17 in A., and from .20 to .25 in B. Again, measured by its own greatest diameter, it is 1.20 in A., and from .92 to 1.23 in B.

The greatest diameter of the capital in A. almost exactly equals the greatest shaft-diameter, but in B. it varies from .90 to 1.13 times that diameter.

In about half the examples, the greatest and least diameters of the capital are nearly proportional with the corresponding diameters of the shaft. The remaining examples depart widely from this proportion.

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* Wathen, Arts, etc., pp. 98, 109.

† Taking good examples of the three varieties, I find that in A. this point is about one fourth of the capital-height from its base; in B. 1, one seventh; and in B. 2, one twelfth.

‡ From the Fayoum. Lepsius, i. 47.

Abacus. — In A., the abacus so much attaches itself to the architrave that its size is determined by the width of the latter, and not by the diameter of the top of the capital; but in B. the architrave and column have established enough of reciprocity to demand of the connecting member the dimensions of both. The abacus is always square. Hence its corners project beyond the upper part of the capital, even when its sides do not.

The height of the abacus is less in A. than in B. Measured by the column-height, it is about .019 in A., and from .046 to .094 in B. Measured by its own width, it is .15 in A., .50 in B.

A condensed recapitulation of the characteristics of groups A. and B. will not be out of place.

A. Type, a bunch of lotus-stems with buds. Plinth low and conical. Shaft slender, over five diameters, of four round stems, not cut in at base, and without sheaths. Astragal narrow, of five twists. Astragal pieces simple, small and round. Capital, of four buds, without sheaths, low, nearly equal in diameter to greatest shaft-diameter. Abacus, low and projecting.

B.* Type, a bundle of papyrus-stems. Plinth variable in height, hemispherical. Shaft stout, not over three and a half or four diameters, of eight triangular stems or adopting their general outline, cut in at base, sheathed. Astragal as before, but wider. Astragal pieces compounded of three sections, large, triangular. Capital, a continuation of shaft-stems, bulging under superincumbent weight, high and sheathed. Abacus high, projecting only at corners.

In the foregoing paragraphs I have aimed to give only those features which seem to be constant enough to be called characteristic and normal. A few rare forms now deserve a word or two.

A curious hybrid of the two species of papyrus columns is found at Dgebel-Addeh (?), according to Rosellini (iii. 3). The drawing is so wretched that no details can be described with certainty. It is enough to say that the capital of the first species is combined with the smooth shaft of the second.

Not infrequently bands encircle the body of the shaft similar to those which constitute the astragal at its top.† From this circumstance arises the oft-recurring remark that these columns are hooped like a barrel.* This method of preventing the bursting of the column under its burden is noticeable, because it confirms the theory (presently to be enunciated) of the source of this columnar form, and because it accords with the explanation just offered of the expansion of the capital. For since an incumbent weight, sufficient to break down and bend back upon themselves the weaker tops of the stalks, would tend to spread apart the stiffer parts below, the presence of these bands implies the existence of such a pressure. In many of these twice or thrice bound columns the number of constituent stalks is different in different sections of the shaft. This may result from a fancied insertion of smaller stems in the intervals of the larger, but is more probably an independent variation of the type.

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* It is to be understood, of course, that this description applies with greater explicitness to the first species of papyrus columns than to the second.

† Good examples in the temple of Luxor. Déscription, iii.·7.

Lepsius gives (i. 107) an engraving of one Ptolemaic column from Philæ, whose capital is composed of several lotus-buds; but it must be regarded merely as a capricious deviation from the antique type, which needs no extended description.

It only remains to trace as best we may the genesis of these forms from natural types.† The possibility of thus tracing back its members to their origin, is one of the peculiarities of Egyptian architecture. Its types are not buried, as are the Greek and those of all subsequent styles, under many successive layers of alteration and refinement, but lie close to the surface, ready to be uncovered by any investigator. The earliest and simplest architectural method is here clearly exemplified in the free use of natural and purely mechanical forms as stepping-stones to artistic products. Of this method this group of columns is an excellent representative.

Sir Gardiner Wilkinson, as already remarked, regards these bundle columns as resulting from the decoration of square pillars.‡ In refutation of this view, it may be urged that, while utterly insufficient to explain the papyrus forms, it is highly improbable for the lotus group to which it was intended especially to apply, for two reasons. In the first place, there are no satisfactory illustrations of the progress of development from the unadorned pier to the comely shafts with their slender stems and buds.§ On the one hand, we have piers in the greatest profusion, with here and there one partially adorned with paintings or bas-reliefs;* and on the other, columns representing a quartette of buds, without a trace of any connection with square piers, or of any preparatory stage of development. In the second place, some features found in the perfected forms must at least have been added after the entire emancipation of the bunch from its supposed early union with the pier. Such characteristics are the astragal, the astragal pieces, and the general form of the whole as related to the remainder of the building. To bring out the latter point, a comparison may be made between the southern and northern tombs at Benihassan. The former contain our principal examples of lotus-bud columns; the latter, only the fluted prisms of which so much was said in Essay I. In both cases there are instances of pilasters projecting from the side-walls in line with the columns or piers, but mark the difference: with the latter, the width of the pilasters exactly equals the diameter of the bottom of the pier, and, indeed, the pilaster is carried over by the architrave, and its width directly conferred upon the abacus; while with the former, the width of the pilaster is 8 cm. less than the lower diameter of the shaft, 9 cm. less than the greatest diameter of the capital, and about as much *greater* than the top and bottom diameters of the capital. (Figs. 2 and 5.) As these two forms are probably of the same period, the conclusion is inevitable that the pier was properly conceived to be a remnant, somewhat altered, of the wall indicated by the pilasters and architrave, while at the same time the column was as properly conceived to be undetermined except in position by the pilasters, an importation from another style of building, and hence really exempt from any limitation of dimension that the pilasters could impose.† These facts combined, though not absolutely disproving Wilkinson's theory, seem to render it quite doubtful.

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* E. g., Gwilt, Dict. of Architecture, p. 37.

† Type, as I have used the term, is a form, whether natural or mechanical, which occasions the conception of an architectural form hitherto unemployed.

‡ Eg. in Time of Pharaohs, p. 153.

§ This refers of course to the indications of a gradual development of conceptions. No one could justly claim that a full series of actual remains is necessary

For my own part, until some adequate proof of another derivation is advanced, I think it more reasonable to consider this lotus group a free and altogether creditable invention of early Egyptian fancy, the origin or occasion of which was the abundance of lotus-flowers in

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for the substantiation of any theory. The point here is simply that there is no satisfactory evidence in the actual forms that the conceptions of the Egyptians took the route suggested by Wilkinson to reach the lotus-bud column.

[*] As for example at Zauiet-el-Meitîn (Lepsius, i. 57; Reber, Kunstgesch., fig. 9, p. 14, etc.), which example proves only that plants were depicted in bas-reliefs. As it represents *open* lotus-flowers, it really adds nothing to the probability of Wilkinson's theory.

[†] Compare Essay I., § 7.

nature, and their constant use in religious services and in the diversions of social life.*

With the papyrus columns the case is much clearer, for but one theory is possible for their origin.† They are undoubtedly derived from the bundles of canes which were used instead of wooden beams in all Egyptian buildings of the earliest times and in all domestic architecture throughout the duration of the Egyptian empire.‡ Confirmation of this theory of early construction, if confirmation be needed, may be sought in the *a priori* naturalness in such a country as Egypt, almost devoid of trees, but abounding in reedy growths, of such a method of building; in the existence of the same custom at the present day, not only in Egypt, but in Mesopotamia and India; in the references in ancient writers to the practice; and in the overwhelming testimony of the monuments. If this hypothesis of origin be accepted, it were easy to compare type and antitype, Nature and Art, and discover the particulars in which the latter modified the products of the former to adapt them to her purposes. But the differences are perfectly obvious.

In view of the fact that the two varieties of columns just described seem to have had quite distinct origins, it may be a matter of surprise that they are grouped together here. The reasons for the collocation are two, namely, that they much resemble each other in composition of shaft and in outline of capital, and that they seem to have acted and reacted on each other to such an extent that the second variety of papyrus columns is in a measure the derivative of both lotus and papyrus forms. If the type assumed as the basis for division be simply a *stalk-bundle*, the present classification is correct. If it be preferred to mark two distinct types — a bouquet of lotus-buds and a building-sheaf of reeds — this order separates into two. Which classification is chosen is largely a matter of taste; the present one is the more concise and convenient,§ the other perhaps more thoroughly philosophical.

I have allowed this description of Order I. to become quite minute, because this order is the plainest of all, the one for the study of which the most plentiful materials exist, and because much that has been said will apply with equal force to other orders, the descriptions of which can therefore be made so much the shorter.

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* The abundance and importance of the lotus in ancient times are proved by its incessant recurrence on the monuments.

† Even Wilkinson employs this explanation a few pages before the classification quoted in the second section of this essay. Eg. in Time of Phars., p. 148. Compare Wilkins, Athens, p. 9.

‡ See Viollet-le-Duc, Habitations of Man in all Ages, (tr. by Benj. Bucknall, Boston, 1876,) p. 76; T. B. Saint-Hilaire, Egypt and the Great Suez Canal, (London, 1857,) p. 256.

§ The lotus columns are almost too few to form an order by themselves.

§ 5. *Order II. — Papyrus Columns.*

Under Order II. were grouped all columns with bell-shaped or "crater-form"* capitals, whether simple or compound. This order can be confounded with no other except Order III., but the simple test of outline which was suggested in § 3 will suffice, I think, to distinguish it from the latter at sight.†

The difficulty in handling the phenomena of this order lies in the fact that, starting from one and the same type, it seems to have undergone two distinct processes of development, which, since they took place at widely separated periods, and under very diverse circumstances, led up to almost inconsistent results. In the first period, during the existence of the Great Theban Empire (Dynasties XVII. to XX.), these columns exhibit a stern simplicity analogous to that shown by Order I.; but in the second period, the era of the Ptolemies (Dynasties XXXII. to XXXIV.), under the stimulus of foreign enterprise and foreign canons of taste, this severity disappeared under a luxuriance of ornament that seems at first utterly alien to the native tendencies of Egyptian art. But on closer examination it is found that this new artistic life, though evincing unprecedented activity, obstinately clung to old methods and aims in confining its choice of types for its decorations to the familiar and oft-employed products of the national vegetation.

It is a striking fact that the bundle column, which is so common in earlier building,‡ was almost entirely discarded by the Ptolemaic architects. Its form seems to have been too unpretending, too inapt for elaborate ornamentation, for their use. Their own awakened taste, or the influence of Greek architecture, already past the summit of its perfection,* prompted them to select that expansive form of capital which afforded the widest play for the fancy and genius of the sculptor.

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* Schnaase, i. 331.

† Although many writers seem to imagine that there is little or no difference in form between lotus-flowers and papyrus-bells. See, e. g., Long, Eg. Antiqs., p. 106, — "the most common form of the capital is that of the calyx of a plant, probably the lotus"; Wathen, Arts, Antiqs., etc., p. 109; Kenrick, Anc. Eg., i. 254, — "the capital is shaped like a bell with its mouth upwards, the reflexed edge being an imitation of the opened flower of the lotus, or of the head of the papyrus." The difference in outline was, however, recognized by the Egyptians themselves, in their pictorial representations of the flowers; compare Lepsius, i. 26, with Rougé, p. 116, 118.

‡ It repeatedly appears in juxtaposition with the bell columns, supporting lower parts of the same halls, as at Karnak and Luxor.

It is hardly practicable to attempt to arrange the columns of this order into sub-groups, for although their capitals, as will be shown, are easily divided into groups, the differences of the latter seem to have had little or no influence on the other members. The only genera, therefore, which will be recognized will be based on a rough chronological division.

Plinth. — Very little need be added here to what was said of the plinth in Order I., except that, while in early periods it is usually similar to the plinth of the bundle columns and is amenable to the same interpretation, in later times it begins to discard the bevelled edge it had at first, and ultimately becomes a cylindrical drum to raise the column from the floor.† It thereby asserts its own individuality, shakes off its symbolic union with the ground, and by assuming vertical outlines proceeds to subserve the increased lightness of the shaft.

The plinth here is smaller than in Order I., the diameter in terms of the greatest shaft-diameter being about 1.50 in the early, and from 1.15 to 1.25 in the late examples.

The height of the plinth is almost as variable as before, ranging from .028 to about .050 of the height of the whole column.

Shaft. — Without much doubt the shaft of these columns was originally shaped much like that of the second variety of papyrus columns in Order I., attaining its greatest diameter some little distance above the plinth; ‡ but in later forms the base of the shaft is no longer cut in, but descends sheer to the plinth with the abruptness of a palm column.§ Whether cut in or straight, the foot of the shaft is decorated with sheaths of various form and collocation, as before described.

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* The period of foreign dominance, which I have called for convenience the Ptolemaic, began in 332 B. C.

† See Déscription, i. 6, *et sæpe.*

‡ The most magnificent example of the typical form of this order is found in the great Hypostyle Hall at Karnak, and is figured in one of the accompanying cuts. The lowest diameter of this example is but .92 of the greatest, and the interval between the two is about .07 of the shaft-height. This set of columns, by the way, is the highest in Egypt, measuring 20.36 m. (66 ft. 9.6 in.) from floor to architrave.

§ Compare Déscription, i. 18, with the cut in the next section but one

With reference to the idea involved in the body of the shaft, it is easier to say what it is not than what it is. The shaft is obviously not understood to be composed of separate stalks, like the bundle columns. But whether a single round stalk is symbolized, or the superficial shape of a bundle (although without any trace whatsoever of a fascicular composition) is represented, or the round form is selected without definite intention, is, I think, very doubtful.

The height of the shaft, referred to that of the column, is surprisingly constant, varying between .72 and .77, — which approaches the corresponding proportions of the lotus columns of Order I.

The shaft-height, measured by its greatest diameter, falls in some rather doubtful examples to 3.52 and 3.65, but varies in better authenticated ones between 4.15 and 5.50. These figures will be seen to range much higher than the corresponding ones for the papyrus group of Order I., and to approach those of the lotus group.

The diminution of the shaft is very irregular. In general it is much less than before, and in later examples the shaft verges upon cylindricity.

Astragal. — The astragal here is nearly the same as in the group called B. 2 in Order I. It is either very superficially represented or altogether omitted. Its position on the shaft is not quite constant; in later forms it is often separated from the capital by an interval about equalling its own width.*

The width of the astragal falls between .075 and .111 of the shaft-height.

There are no proper astragal pieces.

As was just remarked, there is often an interval between the astragal and the capital. In this interval there seems to be a reversion to the bundle idea, for it is usually occupied by vertical stalks, sharp-edged or rounded, but nearly always small and numerous.† Yet the reversion is more apparent than real, for from the facts that bundle columns are not produced at the same period, that the most typical of the early forms lack these stems, that the stems themselves are so small, and, finally, that their position is ordinarily determined by that of the ornaments of the capital, I am convinced that they must be regarded as appendages of the capital, bound upon the *outside* of the shaft by the astragal. But although essentially a part of the capital, since its practical effect is to prolong the shaft beyond the astragal, I have, for convenience in comparing different forms, reckoned this zone of stems when it occurs as part of the shaft.

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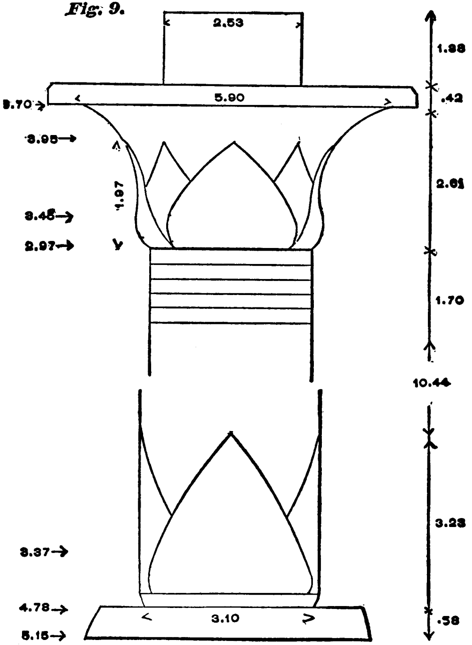
* Description, i. 8, figs. 6, 7, 9–15.

† Ibid., i. 8, fig. 12. In one instance a zone of triangular scales, similar to those presently to be described as belonging to the Palm Order, takes the place of these stems. See Ibid., i. 75, fig. 2.

Capital. — This clears the way for the description of the capital, which is by far the most interesting feature of this order. In the variety of its forms and decorations it is unique among the forms that come within the scope of this essay. In it the Egyptians displayed a fertility of invention which, though very late in their history, is national enough to afford considerable insight into their latent genius for artistic production which might have put forth its energies before and to better ends had not a tyranny of conventionality rigorously repressed and fettered it.

Fig. 9.



The fundamental form at the basis of this capital is precisely that of a very perfectly developed head of the true papyrus, and by common consent this coincidence is considered conclusive of its origin.

The simple bell is undoubtedly the primitive form, but compound

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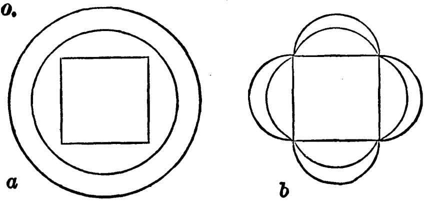
Fig. 9. Papyrus, or Bell Column, from the Hypostyle Hall, Karnak. (After Lepsius.)

forms are also found, mostly in later times, which, while preserving the peculiar vertical curves of the norm, seem to be produced by gathering four or eight half-bells round a common centre.* Wilkinson, as we saw, threw these compound forms with all the lotus capitals into one promiscuous group, which he called "composite"; yet I think that after the difference between the lotus forms and these has once been recognized, the incongruity of that classification will be admitted. On the other hand, the similarity between the simple and compound bell capitals in basal shape appears to me sufficient to warrant their treatment together.

Fig 10.



On the strength of these differences a sort of classification of the order may be attempted as follows : —

Order II. — Papyrus or Bell Columns.
  A. With simple capitals.
  B. With compound capitals.
    1. Of four half-bells.
    2. Of eight half-bells.

The noteworthy features about the shape of this capital are these. (Fig. 9.) At the bottom it leaves the shaft quite abruptly in a convex curve, so that there can be no doubt where the one begins and the other ends. Then, having attained a slight expansion, it rises nearly vertically until about two thirds of its height is reached, when it bends strongly outwards in a concave curve to the flaring edge peculiar to this order. The sweep of this concave curve is sometimes carried up so far that the edge of the capital seems to fall over. This edge is sometimes sharp, sometimes square. In either case it is joined by a bevel to the upper face of the capital. Normally this upper surface is perfectly flat,† but occasionally it is made to slope gradually up to the abacus.* Mechanically regarded, this form of capital is extremely wasteful, the efficient portion of its expansion sometimes falling as low as .18.†

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* Déscription, i. 21, figs. 1, 3, 4, 6. Ibid., i. 75, figs. 4, 6, 10.

† See Ibid., i. 7, fig. 1.

FIG. 10. Outline view of capitals of two groups of Bell Columns, taken from above, showing the important difference between simple and compound bells. (After Lepsius and the "Déscription.")

It would be a difficult task to describe and classify the manifold decorations which are applied to this capital. The subject could only be handled after more accurate data of the capitals were furnished, and an intimate acquaintance was had with the plant-life of Egypt. The subjoined list is therefore offered in the most tentative manner, in the hope that it may be revised by some competent hand.‡ I venture to distinguish eleven decorations, as follows: (*a*) Sheaths, like those at bottom of shaft; § (*b*) Square rings, as if one capital were set into another; || (*c*) Little bells on long sheaths, very similar to pictorial representations of papyrus-heads; ¶ (*d*) Long lanceolate leaves, straight or curved, with strongly-marked ribs; ** (*e*) Ovate leaves, divided palmately like fans; †† (*f*) Long, fern-like, pinnate leaves; ‡‡ (*g*) Short scraps of stem-like astragal pieces; §§ (*h*) Projecting semicircular brackets, reiterating in miniature the form of the whole capital; |||| (*i*) Embryonic volutes or scrolls; ¶¶ (*j*) Peculiar two-horned, calyx-like figures; *** (*k*) Even grape-vines.†††

A slight examination of these capitals suggests three remarks about the disposition of these decorations. First, they do not enter into the interior composition of the capital; indeed, they often seem to have stems which are slipped under the astragal. Second, as a rule they are evenly distributed around the entire circuit of the simple capitals, but grouped in and about the vertical hollows between the half-bells of the

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* Lepsius, i. 88, 89.

† In the great columns in the Hypostyle Hall, Karnak.

‡ It is said that there is a good classification of Ptolemaic capitals in the MS. department of the British Museum. See Wilkinson, Anc. Egs., ii. 293, note 1.

§ Déscription, i. 8, fig. 15.

|| Ibid., i. 8, figs. 1, 2, 4.

¶ Lepsius, i. 81, *a*, *b*; 108, viii.

** Déscription, i. 8, fig. 15. Compare leaflets of *Crucifera Thebaica*, Déscr., (Natural Hist.,) iii. 1.

†† Ibid., i. 75, figs. 1, 4, 6. Compare the same palm as under (*d*).

‡‡ Ibid., i. 8, fig. 14.

§§ Ibid., i. 56.

|||| Ibid., i. 41.

¶¶ Ibid., i. 75, fig. 11; 78, fig. 5; Lepsius, i. 108.

*** Ibid., i. 75, fig. 9.

††† Ibid., i. 77, fig. 9.

compound ones.* Third, however grouped, their height is so graduated that they practically divide the lower half of the capital into narrow horizontal zones.†

Although it is noticeable that the general form of the Corinthian capital is quite similar to this, yet the decorations of the two are almost entirely different. On the whole, it seems improbable to me that the latter was the derivative of the former.

The height of the capital, referred to the height of the shaft, varies from .15 to .25, with an average of .20 or .22; the same, referred to the height of the whole column, varies from .11 to .18, with an average of .15. Each of these ratios is less than in the papyrus columns of Order I.

The height of the capital in terms of its greatest diameter is .45 at Karnak (Hypostyle Hall), and in later times between .55 and .59 The ratio of height to breadth is here quite different from that in Order I.; there it was about 1 : 1, here about 1 : 2.

The greatest diameter of the capital, measured by the greatest shaft-diameter, varies from 1.65 to 1.99 (Karnak). This is of course much greater than in Order I.

Abacus. — The abacus of all these columns is peculiar, because it touches so little of the top of the capital. It is merely an offshoot of the architrave, apparently commissioned mainly to keep the capital and architrave apart. Its usual form is cubical or nearly so, but in a few instances its height is very much exaggerated.‡ Its sides are often occupied by faces or even by whole figures. The subjects are either Isis-heads, such as compose the capitals of Order V.,§ or figures of Typhon, the Egyptian spirit of evil.||

The height of the abacus, referred to the height of the column, is usually from .045 to .068; when extended, .18 to .26.

It may be interesting to call attention to an abnormal form of this order that is found in Tomb 81 at Gizeh, and is figured in the accompanying cut.¶ Its dimensions are so extraordinary that I venture to group them here by themselves. The plinth, if correctly given in Lepsius's plate, is rather high, — .043 of the column; very broad, — 2.14 shaft-diameters; and is strongly bevelled. The shaft is cylindrical, not cut in at the base; extraordinarily high, — .83 of the

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* Simple capitals, — Déscription, i. 8, figs. 14, 15; Lepsius, i. 81, *a*; an exception in Déscr., i. 42. Compound capitals, — Ibid., i. 8, figs. 6, 7, 9, 13.

† Ibid., i. 75, fig. 1. The same remark applies to Corinthian capitals.

‡ E. g., Ibid., i. 62.

§ E. g., Ibid., i. 21.

|| E. g., Ibid., i. 62, — the so-called Typhonium of Edfou.

¶ See Lepsius, i. 27; Reber, Gesch. d. Baukunst, fig. 91, p. 149.

column; and very slender, — seven diameters. The astragal is a narrow band, — .061 of the shaft-height, not divided into rings, projecting prominently from the shaft, and separated from the capital by an interval a little narrower than itself. The capital is low, — .14 of the shaft-height, .11 of the column; but of quite normal proportions, — .54 of its own expansion in height, and 1.76 shaft-diameters in greatest width. The abacus is reduced to the minimum, — .014 of the column-height.

Fig. 11.

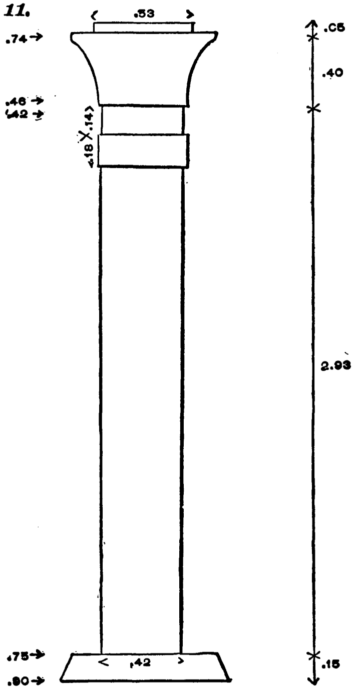
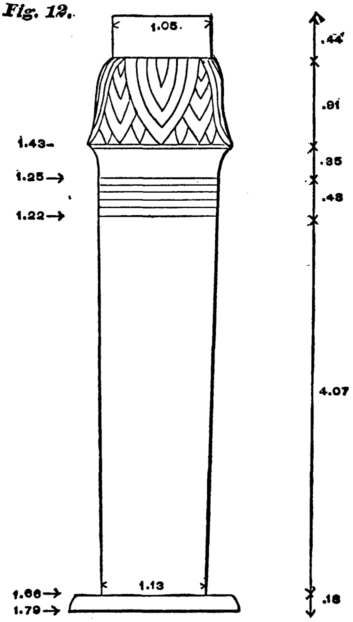


Fig. 12.



One set of twenty columns, to which I have already referred as perhaps the only real exception to the applicability of the classification proposed in this essay, has usually been rather helplessly grouped with the bell columns, and may be well described at this point. These

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Fig. 11. Anomalous Bell Column from Tomb 81, Plateau of Gizeh. One of a set of four. (After Lepsius.)

Fig. 12. Column with inverted bell capital, and inverted shaft, from the Hall of Thothmes III. in the rear of the Great Temple of Karnak. (After Lepsius.)

columns are found in the covered hall — commonly called the Palace of Thothmes III. — in the extreme rear of the great temple-enclosure at Karnak.* They are generally known as the columns "with reversed capitals," although "with reversed shafts and capitals" would be more accurate.† (Fig. 12.) I had the curiosity to follow out this hint, and try the experiment of inverting the capital and shaft of one of these columns, (omitting, however, the section between astragal and capital,) and then comparing the proportions of the reconstructed column with those of ordinary bell columns. The capital proved to be a trifle too small for the top of the shaft, but the various proportions were strikingly accordant with previous results. The plinth is low, but not unprecedented, — .03 of the column-height; and of normal diameter, — 1.43 shaft-diameters. The shaft rises abruptly from the plinth, diminishes gradually, — 1 in 37; is rather heavy, — 3.60 diameters; but of excellent relative height, — .74 of the column. The capital-height, referred to the remainder of the column, is quite typical, — .20 of the shaft, .15 of the column; but is of unusually small width, — 1.14 shaft-diameters; making its height estimated by its own greatest diameter unusually great, — .64. Whether these curious coincidences touching the proportions of these columns really indicate anything concerning their origin I do not know.

Returning now to the normal form, the only necessary remark before passing on to the next order relates to the source from which the present order may be supposed to have been derived. The type is most obviously not mechanical, for no papyrus-bell was ever employed as an actual support; and at all events, whether the connection with the papyrus be accepted or not, such a capital combined with such an abacus is mechanically nonsensical. Hence I think we must again accord to the Egyptians the honor of selecting a natural form remarkable for its grace and importing it bodily into their architecture.

§ 6. *Order III. — Lotus Columns.*

Order III., comprising all columns with open lotus-flowers for capitals, differs little from Order II. except in this member. It seems to have been devised only to afford variety in the colonnades of the latter order, since it never occurs elsewhere, so far as we know, and there is content meekly to accept the proportions in vogue among its associates. It will therefore be unnecessary to enter into any description of the lower parts of the column, except to say that they are like homologous parts in the later forms of Order II. Hence, since the upper and lower parts of the column cannot be regarded as wholly consistent, it must be confessed that this order is not altogether well distinguished, and, were it not for the utter difference in capitals, one would be tempted to combine it with the preceding.

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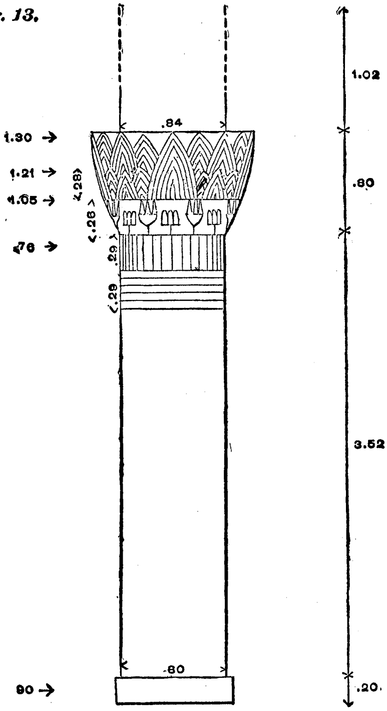
* See Lepsius, i. 81, *d, e;* Déscription, iii. 30; Reber, Gesch. d. Baukunst, fig. 97, p. 157.

† See Fergusson, Hist. of Arch., i. 107; Wathen, Arts, Antiqs., etc., p. 110; Murray's Hand-book for Egypt, (1873,) p. 442.

Fig. 13.



Capital. — If we set aside the minor irregularities of its ornaments, which in truth only repeat the figure of the whole, the outline of the capital expands with considerable regularity and in one convex sweep from the shaft to a perfectly flat top. In the amount of convexity there appears to be a slight difference in the examples, most of them having the strong protuberance shown in the accompanying cut,

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Fig. 13. Lotus Column, from Philæ. The abacus, bearing the head of Athor, with pylon above, is omitted. (After the "Déscription.")

while some have much straighter sides and slenderer figures.* The capital consists of a great lotus-blossom, surrounded by buds, half-blossoms, and sepals, carefully colored in imitation of nature. The slight difference in degree of convexity just mentioned is made more important by the facts that the more frequent variety has more decoration and more complexity, while the rarer form is simply adorned by a row of sepals, and that the sepals in the former are quite flowing in outline, while those of the latter have square tips and nearly straight sides.† Very little decoration besides the sepals, etc., is employed. Certain obscure ornaments at the base of the sepals are not figured explicitly enough to be describable. As in the capitals of Order II., the ornaments are so disposed as to divide the capital into more or less regular horizontal zones. Furthermore, in evident imitation of that order, the expansion of the capital is rendered mechanically nugatory by the smallness of the abacus.

Since these columns always occur with bell columns, they are forced to adopt the same height of capital as measured by the column and shaft-height, namely, about .15 of the former, and .20 of the latter.

The capital-height, measured by its own greatest diameter, is a trifle greater than in Order II., — from .59 to .62.

The greatest diameter of the capital is rather large, — about 1.90 shaft-diameters.

Abacus. — The abacus here does not essentially differ from that of Order II., either in form, dimensions, or decoration.

It is obvious that the statements already made in § 5, about the general character of the type employed and the general quality of the artistic effort put forth, are equally applicable here.

Before passing on to the next section, however, it is but fair to say that the examples of this order are so few that it is almost ridiculous to present generalizations of their characteristics. I have been able to learn of but *six* lotus columns, four at Philæ, two at Edfou.‡ They all belong to the Ptolemaic era.

§ 7. *Order IV. — Palm Columns.*

The columns of Order IV. represent in shaft and capital the trunk and some of the leaves of a palm-tree. In many respects they are the most pleasing of Egyptian columns. Their general lightness and well-utilized energy contrast pleasantly with the cumbrous and irrational

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[*] Compare Déscription, i. 21, fig. 8, with the same, fig. 2.

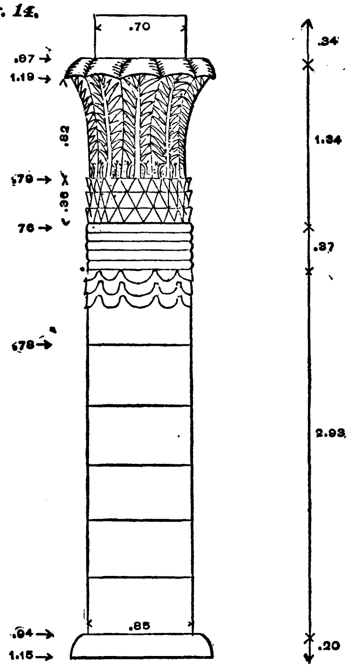
[†] Ibid., i. 21, fig. 2.

[‡] Ibid., i. 6, 20, 21, 54; Lepsius, i. 108, *i*.

character of some of the forms we have already examined; and the type whence they are derived is somewhat more dignified and suitable to the important office of column than the water-plants hitherto selected.

These palm columns, like those of Order III., are frequently combined with representatives of Order II., and many features are possessed by the three orders in common. Indeed, in some cases it is much harder to discriminate the palm than the lotus columns from their numerous papyrus brethren; yet I think satisfactory distinguishing marks will be found when we come to the palm capitals.

Fig. 14.



Plinth. — The plinth does not differ materially from the later plinths of Order II. It is either partially or completely cylindrical, and does not depart widely from well-known proportions.

Its diameter ranges from about 1.15 to 1.60 shaft-diameters.
Its height varies from .035 to .050 of the column.

Fig. 14. Palm Column from Philæ, — now in the Berlin Museum. (After Lepsius.)

Shaft. — The shaft is eminently simple and plain. It is not cut in at the base, but is often decorated with the conventional sheaths. Just below the astragal peculiar semicircular festoons are sometimes found (see accompanying cut), which may be purely fanciful.

The height of the shaft, referred to that of the whole column, falls between .64 and .71.

The shaft-height in diameters varies from a very low example from Antæopolis (Description, iv. 41), 3.21, and several from about 3.90 to 4.31, to one remarkably high one in the environs of Esneh (Ibid., I. 89), 5.10!

The diminution of the shaft is variable.

Astragal. — The conventional five-stranded astragal, although entirely unnecessary upon these solid shafts, is invariably present, and, curiously enough, is usually accompanied by a pendent loop, which points unmistakably to its origin in a cord or thong.*

The width of the astragal is from .099 to .112 of the shaft-height, — a higher average than in Order II.

In one example, given in the above cut, there intervenes between the astragal and the capital a zone of triangular, upright scales, which at once suggests the zone of stalks that is so often found upon the later columns of Order II. Here, as before, the connection theoretically is with the capital, for the scales seem to symbolize the stiff sheaths which cover the origin of the fans whose graceful bending produces the capital. Perhaps the sculptor meant to imply that some of the lower and more scattered leaves had been stripped off, leaving the inner, fresher and more upright ones to form the crown of the shaft. Yet here again, in calculating the several proportions of the shaft and capital, I have chosen to combine this zone with the former, and for the reasons already given in § 5.

Capital. — At first sight it might seem that there is no good reason for regarding this group as aught but a strongly marked variety of Order II., but in fact the two groups are quite distinct. The differences between their capitals may be summarized as follows. First, the bell capitals are seldom, if ever, decorated with straight, narrow palm-fans; the palm capitals are always and only so decorated. Second, the number of the subdivisions of the former, when compound, is four or eight; of the latter, regularly nine.† Third, the subdivisions or half-bells of the former are horizontally convex, and separated by vertical grooves, so that a cross-section of the capital midway between top and bottom is a scalloped circle; the subdivisions of the latter are plane — except for the prominent midribs — or even slightly horizontally concave, and separated by sharp ridges, so that a cross-section similarly taken is a nonagon.* (Fig. 15.) Fourth, the vertical section of the bell capitals is in the main concave, but begins at the bottom in an unmistakable convexity; the vertical section of the palm capitals is continuously concave from the bottom to the drooping edge. (Fig. 4.) Fifth, the bell capitals are so much lower in proportion to their widths than the palm capitals that, when the two occur in the same colonnade, the latter equals the former *plus* the ring of stalks below it.†

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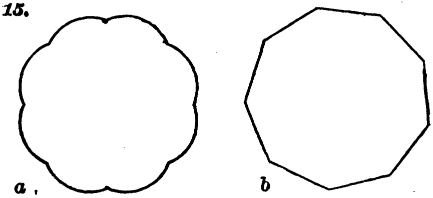
* See Déscription, iv. 41; Kenrick, Anc. Eg., i. 255.

† Lepsius, i. 117, 119; Déscription, iv. 41; Kenrick, Anc. Eg., i. 254.

Fig. 15.



The fans have a very pronounced midrib, from which the pinnately disposed leaflets project on both sides, unless, as sometimes happens, the detailed representation of the leaflets is omitted.‡ The tips of the fans droop considerably. At their bases there is sometimes an attempt to delineate a fruit-stalk.

The height of the capital varies from .27 to .32 of the shaft-height, and from .19 to .22 of the column. These figures rise much above those in Order II., and approach the highest in Order I., second group.

The height of the capital, measured by its own greatest diameter, is from .68 to .83, — again much above Order II., and approaching Order I., B.

The expansion of the capital ranges from 1.20 to 1.60 shaft-diameters, — which is less than in Order II., but greater than in Order I.

Abacus. — There is nothing of importance about the abacus except that its dimensions are by no means so ill-adapted to the supporting function of the capital as often heretofore. The architect's desire seems to have been to leave the tips of the fans unencumbered, and no more.

The abacus occupies from .037 to .066 of the whole column. It is not abnormally lengthened.

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* Lepsius, i. 119. † E. g., Déscription, i. 6. ‡ Ibid., iv. 41.

FIG. 15. *a.* Horizontal section of compound bell capital with eight half bells. *b.* Do. of palm capital with nine fans. The difference between the two, not only in number of subdivisions but in their outline, is obvious. (After the "Déscription" and Lepsius.)

There is one example of this order, generally so consistent, whose proportions are so peculiar that they deserve special mention.* The peculiarities are confined to the shaft and to the relations of other members to the shaft. The anomalous proportions are, shaft, .59 of column, 2.16 diameters; astragal, .132 of shaft; capital, .47 of shaft, .28 of column, but .71 of its own diameter; abacus, .095 of column. All these indicate that the shaft is considerably too short. Can the remains be wrongly reconstructed or measured?

There can be no question, I suppose, about the general type of this order. It is only necessary to note that this is the only Egyptian column incontrovertibly based on the *tree* type; that it borrows several incongruous features from other columns; that its figure is much stouter than that of its type, and indeed that the decided tendency to escape from strict subservience to natural types is evident in it throughout. Why the singular number *nine* should have been selected for the faces of the capital is not plain. Possibly it is to prevent the deeply incised elevation which an octagonal capital thus joined to a round shaft would present when regarded from certain points of view.

This order was principally employed in Ptolemaic times, but seems to have been invented somewhat earlier.

§ 8. *Order V.* — *Isis-head Columns.*

Order V. comprises all columns with Isis-heads in place of capitals. This is an entirely unique form. Instead of a swelling top which appears to have some organic connection with the shaft, we have a group of four heads placed upon a round pillar.

As these columns are neither numerous nor important, I shall content myself with the description of a single example. I select for this purpose the most highly developed specimen of the order, — one of the twenty-four columns supporting the portico or front court of the great temple at Denderah.† (Fig. 16.)

Plinth. — It is evident that here the symbolic origin of the plinth is entirely forgotten. That member is employed and modified entirely without regard to any significance that it may once have had. It is circular and included within vertical sides, as often in Orders II., III., and IV.; but, unlike anything heretofore, is divided into three steps or layers, of which the third is the principal one.

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* Lepsius, i. 119.

† A most magnificent engraving of one of these columns is given in Déscription, iv. 12.

The plinth is rather high, the three layers together occupying .059 of the column, the upper layer alone taking .042.

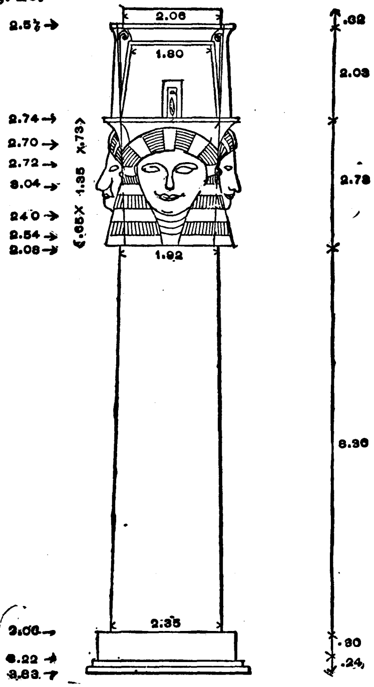
The diameter of the lowest layer is 1.44 shaft-diameters; of the upper layer, 1.30. These resemble the corresponding figures in Order II.

Shaft. — The shaft is perfectly simple, a tapering post unadorned by sheath, flute, or astragal.

Its height is unusually small, — .59 of the column, and 3.55 times its own diameter.

The rate of diminution is moderate, — 1 in 30.

Fig. 16.



Capital. — The free discussion of the peculiar and complex capital does not properly fall within the province of this essay. The most interesting part of the subject belongs to another department of study.

The head of Isis, with its accompaniments, is one of the commonplaces of Egyptian antiquities; it is constantly to be found on

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Fig. 16. Athor-head Column, from the Great Temple of Denderah. (After the "Déscription.")

sistra, mirrors, vases, door-posts, abaci, and walls,* an emblem of even greater frequency than the cross in modern times. And just as the true significance of the cross is to be determined by the student of religion rather than of art, so the significance of this emblem belongs to the history of religion rather than to the history of art. Hence I shall be content with a very cursory examination of it, laying all emphasis upon its characteristics as an architectural member.

The essential part of the capital is the sensuous, Oriental face of the goddess, with its double chin, elongated eyes and nose, voluptuous mouth, and unhuman ears. Around this is curved the conventional head-dress, wrapped by several ornamented bands and held in place by being passed behind the ears. Upon the head is placed first an ordinary Egyptian cornice, and upon this a pylon crowned with a second cornice. Through the door of the pylon is seen the asp so frequently recurrent in Egyptian ornamentation. On either side of the pylon is an upright, scroll-like member. All these features are conventional in the highest degree, as any one may convince himself by glancing through the engravings of Lepsius, Champollion, and Rosellini.

Touching the form of the capital as such, the following remarks suggest themselves. First, there is no connection between shaft and capital, but the latter is abruptly cut off at the bottom, as though the artist were unable to invent a satisfactory joint. Secondly, the capital falls into two quite distinct parts, the lower principal, the upper ornamental and accessory. Third, although, in consequence of the projection of the two side-faces, the capital appears on the whole wider at the bottom than at the top, yet in reality each separate face regarded from in front is considerably narrower below than above.

The effective width of the lower edge of the capital, i. e. looked at from directly in front of one of the faces, is 2.54 m.; of the widest part (at the point of the nose), 3.04 m.; of the first cornice, 2.74 m.; of the second, 2.57 m.; or, in terms of the greatest shaft-diameter, 1.08, 1.29, 1.17, and 1.08 respectively.

The width of each face or front taken by itself increases steadily from 1.92 m. (.82 diameters) at the bottom, and 2.06 m. (.88 diameters) at the first cornice, to 2.22 m. (.94 diameters) at the second.

The height of the whole capital is comparatively very great, — .57 of the shaft-height, .33 of the column. The two sections of the capital occupy .57 and .43 of its height, .33 and .24 of the shaft-height, .19 and .14 of the column.

The height of the whole capital, measured by its different widths, is, by the lowest, 1.87; by the greatest, 1.56; by that of the first cornice, 1.73.

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* See Lepsius, i. 88, 100, 108; iii. 80, 82, 192; iv. 26, 40, 53; Déscription, i. 21; Champollion, i. 7; Rosellini, iii. 4; Wilkinson, Anc. Egs., ii. 350, etc., etc.

The lower half divides into four horizontal sections: below chin, .65 m. high; face, 1.35 m.; head-dress above head, .51 m.; cornice above head-dress, .22 m. The face, therefore, occupies just one half the height of the lower part of the capital.

The greatest width of the face is between the tips of the ears, — 2.00 m. The width of the face proper at the same height is 1.43 m. The general form of the face is that of an equilateral triangle. Its vertical proportions are far from classic; being, lower face, .39, nose, .42, forehead, .19.

Abacus. — The abacus is very low and well adjusted to the top of the capital.

Its height is only .022 of the column.

The genesis of this form is doubtful. Wilkinson of course connects it with the square pier, and in support of his opinion might have adduced many striking examples at various stages of development. Yet in the column under consideration there is absolutely no trace of such derivation. It looks more as if the four heads had been joined to a true columnar form. This speculation, however, is of little use, for this column belongs to so late and advanced a period that no perfectly distinct type can be insisted upon for it.

For convenience in comparison and reference, I subjoin a tabulation of the proportions I have noticed in the preceding pages.

	I.			II.		III.	IV.	V.
	A.	B.		Early.	Late.			
		1.	2.					
PLINTH.								
Height, *referred to column,*	.028	.045 — .070		.028 — .050		.03 — .05	.035 — .050	.059
Diameter, *in greatest shaft-diameters,*	2.06	1.21 — 1.39 +	1.41 — 1.48	1.50	1.15 — 1.25	1.15 — 1.25	1.15 — 1.60	1.30, 1.44
SHAFT.								
Height, *referred to column,*	.78	.61 — .70		.72 — .77		.75	.64 — .71	.59
" *in greatest diameters,*	5.50	3.40 — 3.95		{ 4.15 — 5.50 (*reg.*) { 3.52 — 3.65 (?)		4.50 — 5.00	{ 3.90 — 4.31 { 3.21, 5.10 (!)	3.55
Diminution, — 1 in	27	15	9 — 57 (!)	Less than in I.		*Vide* II.	*Vide* II.	30
ASTRAGAL.								
Width, *referred to shaft-height,*	.06	.09 — .12		.075 — .111		*Vide* II.	.099 — .112	. . .
CAPITAL.								
Height, *referred to column,*	.17	.20 — .25		.11 — .18		.15	.19 — .22	.33
" *referred to shaft,*	.22	.28 — .38		{ .20 — .22 (*reg.*) { .15 — .25		.20	.27 — .32	.57
" *in greatest capital-diameters,*	1.20	.92 — 1.23		.45	.55 — .59	.59 — .62	.68 — .83	1.56
Diameter, (greatest,) *in shaft-diameters,*	1.00	.90 — 1.13		1.65 — 1.99		1.90	1.20 — 1.60	1.29
ABACUS.								
Height, *referred to column,*	.019	.046 — .094		{ .045 — .068 (*reg.*) { .18 — .26 (*extended*)		*Vide* II.	.037 — .066	.022